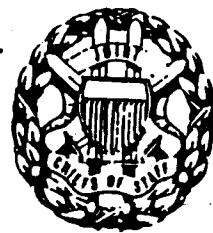


S4120000626000

~~TOP SECRET~~
ATOMIC ENERGY ACT

~~TOP SECRET~~
~~SPECIAL HANDLING REQUIRED~~
~~NOT RELEASABLE TO FOREIGN NATIONALS~~



JOINT STRATEGIC OBJECTIVES

PLAN (JSOP)

JOINT STRATEGIC OBJECTIVES PLAN
FOR FY 1970-1974 (JSOP-70)(U)

The provisions of JCS Memorandum of Policy No. 74 are applicable to this document. Accordingly, a semi-annual report as of 1 January and 1 July, of the sighting of this document is required and will be forwarded within 30 days after the "as of" date to the Secretary, Joint Chiefs of Staff (ATTENTION: Chief, Documents Division)

PART VI

FORCE TABULATIONS AND ANALYSIS

THE JOINT CHIEFS OF STAFF
WASHINGTON 20301, D.C.
FORMERLY RESTRICTED DATA

Unauthorized disclosure subject to
Administrative and Criminal Sanctions.
Handle as Restricted Data in Foreign
Communication Section 144.b., Atomic
Energy Act 1954.

85

1965

1965

DDS & P
AKIC DIV

DEPARTMENT OF ENERGY DECLASSIFICATION REVIEW	
VIEW DATE: 10/16/02	DETERMINATION: (CIRCLE NUMBER) CLASSIFICATION: UNCLASSIFIED
CLASSIFICATION: UNCLASSIFIED	REASON: NO LONGER CLASSIFIED INFO
VIEW DATE: 6/3/01	COORDINATE WITH: [initials]
PRIORITY: DD	CLASSIFICATION CANCELED
	CLASSIFIED INFO BRACKETED
	OTHER (SPECIFY): [initials]

CLASSIFIED(PA) DFOIS
TOP SECRET CONTROL

Copy No. R-1
Use No. 98-1-3347
S. No. 94-TS-330
Document No. 1

FORM 62B
JCS 16 JUN 64

~~TOP SECRET~~
~~SPECIAL HANDLING REQUIRED~~
~~NOT RELEASABLE TO FOREIGN NATIONALS~~

~~TOP SECRET~~
ATOMIC ENERGY ACT

1965

161 pages

025A201000010

JOINT CHIEFS OF STAFF
OFFICIAL FILE COPY
JCS 2000 10 1960
Doc D. R.
Dec 2

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~
COPY NO. 05

1 February 1965

DISTRIBUTION B

VOLUME I

JSOP-70 PART VI FORCE TABS

Section A - Strategic Retaliatory Forces and Continental Air
and Missile Defense Forces

Appendix A - US Strategic Retaliatory Force

Appendix B - US Continental Air and Missile Defense
Forces and US Target List

Appendix C - Soviet Bloc Strategic Offensive Forces
and Target Lists

Appendix D - Weapon Application Summaries

Appendix E - FYFS&FP Tables 4 and 5

Tab A - Views of the Chief of Staff, US Army

Tab B - Views of the Chief of Naval Operations

Tab C - Views of the Chief of Staff, US Air
Force

Tab D - Views of the Commandant of the Marine
Corps

GROUP 1
EXCLUDED FROM AUTOMATIC
DOWNGRADING AND DECLASSIFICATION

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

JOINT STRATEGIC OBJECTIVES PLAN - 1970

PART VI
SECTION A

STRATEGIC RETALIATORY FORCES AND
CONTINENTAL AIR AND MISSILE DEFENSE FORCES

	<u>PAGE</u>
1. Basic Considerations Used in Analysis	A-1
a. Purpose	
b. Basis of Offensive and Defensive Force Requirements	
c. Sino-Soviet Strategic Posture	
2. Assumptions and Procedures	A-5
a. Assumptions	
b. Methodology	
3. Force Interactions	A-12
a. General	
b. Pattern of Attacks	
c. War Outcomes	
4. Strategic Offensive Systems	A-21
a. Introduction	
b. Forces for Attack of USSR Urban Targets	
c. TOP SECRET	
d. Damage Limiting Offensive Forces	
e. Mobile Mid Range Ballistic Missiles	
f. POLARIS (POSEIDON) B-3 Development	
g. Advanced Manned Strategic Aircraft Development	
h. Reduced US Bomber CEP	
5. Defensive Systems	A-32
a. Introduction	
b. Relative War Outcomes, 1969	
c. Relative War Outcomes, 1974	

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

Section A

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

Page

d. Defense Against Submarine Launched Missiles	
e. Advanced Defensive Systems	
6. Consideration of Requirements of Unified and Specified Commands	A-60
a. General	
b. Mobile MINUTEMAN	
c. ICBM-X	
d. Airborne Alert Weapon System	
e. Additional B-58s	
f. CINCONAD Interceptor Force	
7. Key Uncertainties	A-63
8. Summary of System Recommendations	A-65
APPENDIX A. US Strategic Retaliatory Force	A-69
Appendix B. US Continental Air and Missile Defense Forces and US Target List	A-72
TAB A. Programmed Air Defense Forces, FY 1969 Model	
TAB B. NIKE-HERCULES Defense System Model	
TAB C. Antisubmarine Warfare Attrition Model	
TAB D. HAWK System Model	
TAB E. Advanced Manned Interceptor Model	
TAB F. NIKE-X System Model	
TAB G. SAM D System Model	
TAB H. Airborne Warning and Control Model (AWACS)	
TAB I. Civil Defense Posture Model	

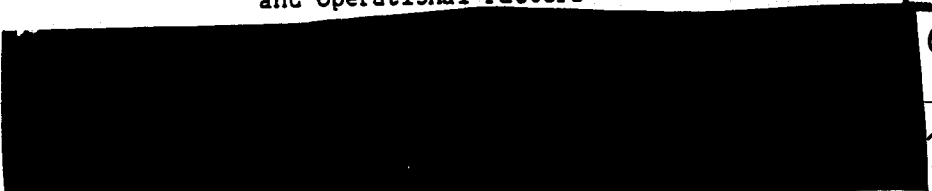
~~TOP SECRET~~

~~TOP SECRET~~

	<u>PAGE</u>
APPENDIX C. Soviet Bloc Strategic Offensive Forces and Target Lists	A-88
APPENDIX D. Weapon Application Summaries	A-94
APPENDIX E. Force Tabulations	
TABLE 4 - Strategic Retaliatory Forces	A-101
TABLE 5 - Continental Air and Missile Defense Forces	A-105
TAB A Views of the Chief of Staff, US Army	
TAB B Views of Chief of Naval Operations	
TAB C Views of Chief of Staff, US Air Force	
TAB D Views of Commandant of the Marine Corps	

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

	<u>LIST OF TABULATIONS</u>	<u>Page</u>
TABLE 1	Damage and Fatality Summary	A-19
TABLE 2	Damage and Fatality Summary	A-20
TABLE A-1	JSOP-70 Basic US Strategic Retaliatory Forces used in Force Interactions	A-70
TABLE A-2	US Strategic Offensive System and Operational Factors (JSOP-70)	A-71
TABLE B-1	JSOP-70 Basic US Continental Air and Missile Defense Forces used in Force Interactions	A-73
TABLE B-2	US Target List	A-74
TABLE C-1	Soviet Strategic Offensive Force	A-89
TABLE C-2	Soviet Missile Systems and Operational Factors (JSOP-70)	A-90
TABLE C-3	Soviet Strategic Bomber Inventory and Operational Factors	A-91
		
TABLE D-1 Through D-5	Weapon Application Summaries	A-96 - A-100

B(1)
B(1)

~~TOP SECRET~~

~~TOP SECRET~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

1. Basic Considerations Used in Analysis

a. Purpose. To develop effective balanced forces which are modern, flexible and considered both essential and reasonably attainable in the mid-range period in order to support US policies. Specifically, the analysis will develop: the levels of strategic retaliatory forces and continental air and missile defense forces recommended for the years 1967 through 1974 with primary emphasis upon those forces which must be supported by the FY 1967 budget and the impact upon future programming actions. Recommended systems development and objective force levels are provided and reflect the period end FY 1965 through FY 1974.

b. Basis of Offensive and Defensive Force Requirements

(1) US force level objectives have been derived to support the strategy and accomplish the objectives stated in Parts I-V of JSOP-70.

(2) The Program I and II analysis has considered the Joint Chiefs of Staff, Service and other agency studies and, in part, is based on the CJCS SSG study of Alternative General Nuclear War Postures (AGNWP),* as revised in targeting methodology and by recent changes in Soviet Intelligence estimates and revisions in weapon system performance for both US and Soviet systems. Studies of this nature are considered to be useful devices for examining the critical areas in force compositions. However, since the conclusions of such studies are particularly sensitive to the assumptions upon which they are based, they cannot

* JCS 2280/28

~~FORMERLY~~

~~RESTRICTED DATA~~

~~AS DEFINED BY ATOMIC ENERGY ACT OF 1954~~

~~TOP SECRET~~

~~TOP SECRET~~

in themselves be considered in isolation nor can they
be directly converted to force level determinations.
The analysis that follows is intended to be illustrative in order to provide a background for the force levels recommendations contained in JSOP-70. These force levels have been determined on the basis of military judgment and in the view of the Joint Chiefs of Staff constitute requirements necessary to achieve a balanced US offensive/defensive force mix.

(3) The more significant changes in US offensive weapon system performances are represented by a three to five percent lower probability of arrival for POLARIS and MINUTEMAN, and the introduction of the POLARIS B-3 by the 1974 time period as a follow-on to the A-2, A-3. The desirability of employing a multiple warhead configuration for TITAN II in the 1974 time period was recognized.

(b)(1) [REDACTED] For the purposes of this analysis NIKE-HERCULES was attributed a [REDACTED]

[REDACTED] NIKE-X deployment was examined for 47 complexes. In addition, a significant HIP/HAWK deployment in CONUS was examined for the 1974 period. US Programs I and II system deployments, operational factors and models, submitted by the Services and examined in force interactions of JSOP-70 are indicated in Appendix A and Appendix B, respectively. The US Target List is indicated in TABLE B-2, Appendix B.

DOE
b(3)

~~TOP SECRET~~

A-2

Section A
Part VI, JSOP-70

~~FORMERLY~~

~~RESTRICTED DATA~~

~~AS DEFINED BY ATOMIC ENERGY ACT OF 1954~~

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

c. Sino-Soviet Strategic Posture

(1) Offensive Forces. Intelligence estimates obtained from the current JIEP* primarily differ from those in AGNWP in that there is a major reduction in the number of 100 MT missiles for the entire period and a reduced long range bomber threat for the latter period (1974). The Soviet bomber threat is maximized for purposes of analysis, by employing the Soviet medium bombers against the United States target systems on one-way missions. TABLE C-1, Appendix C, shows a comparison of the Soviet threat used in the AGNWP study with that contained in the current JIEP and used in this analysis. It is assumed that Communist China will develop a limited nuclear delivery capability for the period examined.

(b)(1)
TABLES C-4 and C-5 show comparisons of the Soviet target lists used in AGNWP with that used in

the JSOP-70 analysis. It will be noted that there is a reduction in the number of ABM defended Soviet cities for the earlier period (1969).

(2) Soviet Threat Model. The Soviet missile multiple warhead/decoy configurations to be employed against a ballistic missile defense are as prescribed by DDR&E.

* For complete intelligence, see current JIEP, 1964.

~~TOP SECRET~~

A-3

Section A
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

(3) Soviet Operational Factors. Soviet weapon system performance estimates contained in the JIEP are degraded from those used in AGNWP. SS-9 and SS-7 alert rate is five percent lower.

[REDACTED] Air-to-surface missile on-launch and in-flight reliabilities are five and ten percent lower, respectively.

On the other hand, bombing accuracy is increased for JSOP-70 from a 3,000 ft. CEP to 2,000 ft. CEP. The Soviet ABM model kill probability is likewise degraded from .85 (for each arriving warhead) to .80 in JSOP-70. Soviet weapon system operational factors are tabulated in TABLES C-2 and C-3.

(4) Soviet Civil Defense. DIA estimates that a Soviet fallout shelter program of 25-28 million spaces for the urban population could be in effect by 1969-1970, together with continued emphasis on rural do-it-yourself fallout protection. This level comparatively is between two alternative US civil defense programs developed by OCD, and designated in the AGNWP study as Shelter Posture 1 (no formal program) and Shelter Posture 2 (continuing fallout shelter program - 90 million shelter spaces). Examination of

~~TOP SECRET~~

A-4

Section A
Part VI, JSOP-70

~~RESTRICTED DATA~~

~~TOP SECRET~~

~~TOP SECRET~~

US "Assured Destruction" force variations has, therefore, been based upon a Soviet posture equivalent to US Posture 2, although this is somewhat in excess of the DIA estimate.

2. Assumptions and Procedures

a. Assumptions. The basic assumptions employed in the JSOP-70 analysis are:

(1) Soviet Long-Range Aviation

(a) All strike aircraft of the Soviet Long-Range Aviation were committed to attack of the North American continent. A detailed breakdown of aircraft types and weapon loadings is contained in TABLE C-3. Appendix C.

(b) Prepositioning of Soviet medium bombers was limited to the 300 aircraft staging base capacities indicated in the JIEP. With the exception of ANADYR, all 11 staging bases were assumed to be available for three hours (after the initial Soviet bomber launch) for staging purposes when the USSR initiated.

(c) In the Soviet initiative case, it was assumed that all ready Soviet bombers were launched prior to impact of the United States retaliatory missile attack. [REDACTED] it was assumed that the ready Soviet bombers located on home and dispersal bases were launched on BMEWS type warning. Due to the location of the Arctic staging bases, it was assumed that there would be insufficient warning time for the launch of bombers from these bases prior to impact of US missiles.

(b) (1)

~~TOP SECRET~~

A-5

Section A
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

(d) In order to obtain adequate target coverage, EISON, BADGER and BLINDER aircraft were used on one-way missions. BEAR aircraft were launched on one and two-way missions.

(2) Soviet Missile Submarines

(a) All of the in-commission Soviet ballistic missile submarines and one-half of the "E" class cruise missile submarines were allocated to the attack of the United States. The remainder of the cruise missile submarines were assumed to be employed against naval forces or targets outside of CONUS. In accordance with the DIA estimate, 85 percent of the missile submarines were assumed to be in-commission.

(b) Eight ballistic missile submarines were maintained on-station off the United States coasts and committed to the attack of SAC bomber bases. For this analysis, it was postulated that this number of on-station submarines would be below the United States alarm threshold and would not result in an increased defense readiness posture or hostile ASW attacks prior to war outbreak. The remainder of the in-commission missile submarines were at sea and assumed to be outside the range of CONUS ASW forces. In the initiative cases, these submarines departed port just prior to "E" hour.

(c) With the exception of the on-station SLBMs, all at sea submarine missiles were targeted against US urban complexes.

~~TOP SECRET~~

A-6

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(3) US Bombers

(a) The United States bomber force was in a normal state of alert in Soviet initiation and in a fully generated posture. In the normal state of alert, all bombers were located on 43 home bases. In the fully generated posture, these aircraft were located on 43 home bases and 56 dispersal fields. Non-ready aircraft were on home bases.

(b) All ready bomber aircraft were launched under positive control on BMEVs warning of the ICBM attack, however, it was assumed that there would be insufficient warning time of an SSBM attack. Therefore, the bombers located on the bases targeted with submarine missiles suffered the full impact of the SLBM attack. Those alert aircraft escaping damage from the SLBM attack were launched prior to arrival of ICBMs.

(4) POLARIS Submarines

The remainder of the SSBNs which were in port received the full impact of the Soviet attack on US submarine facilities. In view of DIA judgments as to limited prospects for Soviet development of an effective open-sea ASW capability, and in accordance with the Navy input to the study, it was assumed that there would be no Soviet ASW attrition of the POLARIS SSBNs at sea prior to launch of all missiles.

~~TOP SECRET~~

A-7

Section A
Part VI, JSCP-70

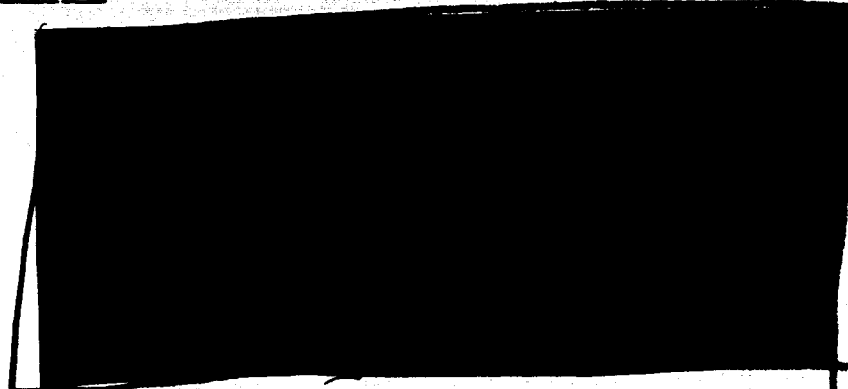
~~TOP SECRET~~

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

(b)(1)



(5) Retaliatory Missile Launch. In all cases, except for MINUTEMAN forces which were not attacked in this analysis, the retaliating ICBM forces suffered the full measure of prelaunch attrition from the enemy missile attack prior to retaliatory missile launch. It was assumed that neither side would launch on a BMEWS type warning.

b. Methodology

(1) Results of the JSOP-70 analysis, when measured in terms of fatalities and industrial damage, are generally consistent with those contained in the AGNW? study except that damage to the United States is less as a result of wider terminal defense deployments and of the decreased Soviet threat. Because of the similarity in results, it was not considered necessary to repeat the large number of war games associated with each of the possible strategies. Two scenarios have been selected for detailed examination in order to illustrate the general range of damage which might be expected in the periods 1969 and 1974. A Soviet initiative attack with combined military

~~TOP SECRET~~

A-6

Section A
Part VI, JSOP-70

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

and immediate urban targeting has been selected as
representative of the higher levels of attack options
which might be expected. The lower levels of the
spectrum of possible attacks is represented in JSOP-70
by Soviet retaliation [REDACTED]

(2) Forces in this analysis were developed under
the following conditions: [REDACTED]

Offensive forces required for achievement of this
task are affected by the shelter posture assumed for
the Soviet Union. Offensive force requirements are
based on a Soviet program which equates to the
United States "Continuing Shelter Program" and would
be greater if the Soviets should elect to develop a
full fallout shelter program. Conversely, weapon
requirements would not be reduced, although fatalities
would be increased if the Soviets had a lesser shelter
program [REDACTED]

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

(1) (1)
(b) (1)
[REDACTED]
Contributions of allied and theater forces
have been considered in the development of the
Strategic Target List for Soviet Russia [REDACTED]

(5) Continental air and missile defense systems
currently deployed and those proposed by the Services
for limiting damage to the United States are those
required for ballistic missile, submarine launched
missile, area bomber, and terminal bomber defenses.
Complementing these Program II forces are anti-
submarine warfare forces, a counter-military force
(b) (1) adequate for [REDACTED] retaliatory options,
plus a civil defense full fallout shelter program.

(6) Service-proposed deployments of defensive
forces examined in the later period (FY 1974) are not
numerically the same as those examined in the AGNWP
except for ASW forces. This analysis illustrates
employment of proposed new systems but does not address
the effect of variations in deployment numbers of each
proposed new system. Rather, the methodology was
intended to determine the development and initial
deployment of a system conceived to fulfill a requirement.

~~TOP SECRET~~

A-10

Section A
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~
[REDACTED]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

Therefore, in order to determine the damage limiting capabilities of existing and proposed defensive systems, and alternative mixes of these systems, four different defensive force options were employed in the 1974 Soviet initiative exchanges. These deployments are intended to be illustrative to show the damage limiting capabilities of the respective defensive systems and are described as follows.

(a) FORCE A. A basic force consisting of the programmed defensive forces for FY 1969 in the DOD Five-Year Force Structure and Financial Program. These programmed defensive forces have been employed in the 1969 force interactions as well as constituting one alternative mix for the 1974 nuclear exchanges.

(b) FORCE B. The basic force, with the 1974 Air Force-proposed area bomber defenses substituted for the currently programmed area defenses.

(c) FORCE C. The basic force plus deployment of a NIKE-X ballistic missile defense at 47 metropolitan complexes.

(d) FORCE D. Deployment of NIKE-X with the 1974 Army-proposed terminal bomber defense and the 1974 Air Force-proposed area bomber defense.

(7) In order to compare results of force interactions, blast equivalent and gross megatonnage curves were developed from selected AGNWP war games. These curves were used to estimate US damage and fatalities. In addition, the NMCSSC provided machine run damage

~~TOP SECRET~~

A-11

Section A
Part VI, JSOP-70

~~TOP SECRET~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

and fatality data for TABLE 1 and 2 (Damage and Fatality
Summaries, pages 19-20) which generally validated all
data derived from the blast equivalent and gross
megatonnage curves. To develop the offensive force
requirement for meeting the assured destruction
criteria of this analysis in the Soviet Union, one of
the AGNWP force variations in US Retaliation to Soviet
Initiation was selected which obtained [redacted] percent Soviet
fatalities under Shelter Code 2 and [redacted] percent damage
to Soviet MVA. A JSOP-70 [redacted] force which
delivered the identical total blast equivalent was
then developed for FY 1969 and FY 1974. The force
requirements to meet the alternative [redacted]
levels [redacted] were similarly developed.

6(1)
3. Force Interactions

a. General. Interactions between the United States
offensive and defensive forces and the Soviet Median Force
were examined under the two conditions of-war outbreak
selected for analysis. These forces are described in
Appendix A and B, respectively.

b. Pattern of Attacks. Targeting philosophies and the
pattern of attacks employed by the USSR and the United
States are similar to those used in the AGNWP, except in
the adjustment of some Soviet targeting to US defensive
postures. Weapon application summaries of the more
significant cases are contained in Appendix D. A brief
description follows:

(1) Soviet Initiative. All Soviet initiative attacks
involved concurrent attacks on US urban and military
targets with US forces in a normal alert posture and

~~TOP SECRET~~

A-12

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

Soviet forces generated and in a high state of readiness. 1
The Soviet counter-force attacks were principally 2
against the soft military targets; e.g., SAC airfields, 3
submarine/naval bases, command and control targets and 4,
defense suppression targets. 5

(a) Soviet Military Attacks 6

1. SAC bases were targeted by ICBMs and 7
by on-station SLBMs. SAC alert bombers located 8
on the bases targeted with SLBMs were assumed 9
to suffer the full measure of attrition from 10
the SLBM attack prior to launch. However, those 11
alert bombers surviving the SLBM attack were 12
assumed to have launched prior to arrival of 13
ICBMs, based upon BMEWs warning. 14

2. Naval bases, offensive controls and 15
defense suppression targets were attacked with 16
ICBMs, as were the TITAN II hard missile sites. 17
MINUTEMAN sites were not attacked. Soviet 18
bombers were programmed against nuclear 19
storage and production targets. 20

3. The military attack in paragraph (1) (a), 21
above, was employed in all of the Soviet initia- 22
tive attacks with but one variation. In FY 23
1969, and for the Soviet attacks in FY 1974 24
not involving US deployment of NIKE-X, TITAN II 25
sites were attacked; for those in FY 1974 26
involving NIKE-X deployments at urban complexes, 27
weapons employed on TITAN II were diverted to 28
the urban attack. 29

~~TOP SECRET~~

A-13

Section A
Part VI, JSOP-70

~~TOP SECRET~~

ACT OF 1954

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

(b) Soviet Urban Attacks. Soviet urban attacks have been optimized against each US defensive array in order to maximize fatalities. Since those in the FY 1974 time period are of special interest, they will be discussed in greater detail in paragraph 5 dealing with Defensive Forces.

(c) US Retaliation. In retaliating from normal alert, the strategic retaliatory forces generally followed an attack pattern on military targets.

(b)(1)

Missiles were

followed by bombers. To meet the assured damage criteria in the Soviet Union, an attack force was developed as outlined in paragraph 2. The United States force was constituted with alert or at-sea weapons.

(b)(1)

DOE
b(13)

* See paragraph 4. a. (5), page A-22.

~~TOP SECRET~~

A-14

Section A
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~

~~AS DEFINED BY ATOMIC ENERGY ACT OF 1954~~

~~TOP SECRET~~

~~TOP SECRET~~

(b)(1)

1/ See CSA view, Tab A, Appendix E.

The FY 1974 force shown above is based upon attack
of [REDACTED] and no preferential
targeting of TITAN II. Should the Soviets deploy
[REDACTED] or should a military attack
on the TITAN II system be made, the [REDACTED] attack
force requirements would be higher.

(2)

(a)

[REDACTED] in a period of tension, both sides are
generated and are in a high state of readiness.
Nuclear threat targets were preferentially targeted
by alert weapons so as to limit damage to the
United States and our allies.

(b)(1)

[REDACTED] Other nuclear threat

targets were attacked with at least one reliable
missile. Offensive controls and defense suppres-
sion targets were likewise taken under missile
attack. These missiles were followed by bomber

~~TOP SECRET~~

A-15

Section A
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~

~~AS DEFINED BY ATOMIC ENERGY ACT OF 1954~~

~~TOP SECRET~~

~~FORMERLY~~

~~RESTRICTED DATA~~

~~TOP SECRET~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

(b)(1) delivered weapons. [REDACTED]

(b)

For each time period, [REDACTED]

[REDACTED] force was developed which met the

specified damage and fatality criteria for the

assured destruction task. However, execution of

attack by this force was withheld until after the

Soviets retaliated. In view of the fact that the

Soviet bomber and missile force had suffered heavy

prelaunch attrition [REDACTED]

[REDACTED] counterforce attack and Soviet retaliatory

effort was programmed against the US urban-industrial

base, no attrition was suffered by the US retaliatory

force. Composition of the alert or at-sea force for

attack of the Soviet Union was as follows:

(b)(1) Ready force requirements for [REDACTED]

[REDACTED] were the same as in the Soviet

Initiative case.

DOE
b(1)

~~FORMERLY~~ ~~TOP SECRET~~

A-16

Section A
Part VI, JSOP-70

~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(c) Soviet Retaliation. All Soviet weapons 1
 surviving the US missile strike were programmed 2
 against US urban targets. This type of response 3
 is illustrated because it represents one of the 4
 possible options available to the USSR if their 5
 command and control system is sufficiently respon- 6
 sive and survivable to execute such an attack. 7
 Only the alert heavy bomber force escaped the US 8
 ICBM attack, assuming a BMEWs type warning, 9
 virtually all aircraft prepositioned at the 10
 primary staging bases were destroyed. The surviving 11
 1969 ICBM force was targeted together with the 12
 SLBMs and SLCMs on the major US cities. The genera- 13
 tion of the US ASW force raised the rate of Soviet 14
 submarine attrition from 25 to 75 percent. Surviving 15
 bombers were generally targeted on cities having a 16
 population of at least 150,000 people. Retaliation 17
 by the 1974 Soviet force was examined only against 18
 the best US defensive mix. Because of the over- 19
 all US defensive capability, the surviving Soviet 20
 weapons were generally targeted against US cities 21
 not having an ABM defense. This interaction and 22
 the results are described in greater detail in 23
 paragraph 5. 24
 c. War Outcomes 25
 (1) A summary comparison of the industrial damage 26
 and fatalities in the United States and Soviet Union, 27
 which resulted from the various force interactions, 28

~~TOP SECRET~~

A-17

Section A
 Part VI, JSOP-70

~~TOP SECRET~~

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

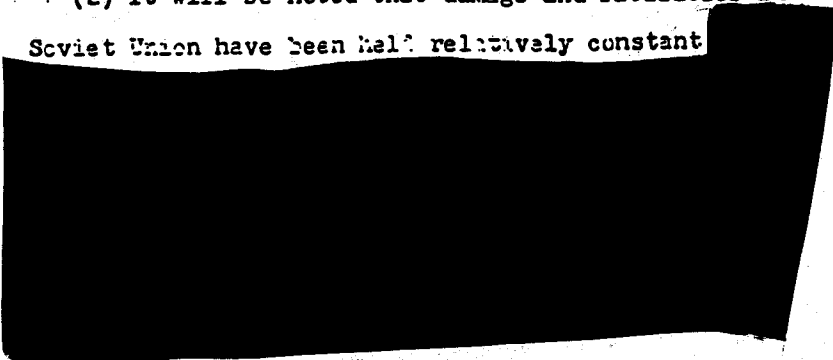
~~TOP SECRET~~

~~TOP SECRET~~

are shown for ease in reference in the tables immediately following. Fatality results have been estimated for blast only, and for combined blast and fallout under each of the three civil defense fallout shelter postures for both the United States and the Soviet Union. All results are expressed in percentages of the national population and industry destroyed.

(2) It will be noted that damage and fatalities in the Soviet Union have been relatively constant

b(1)



~~TOP SECRET~~

A-18

Section A
Part VI, JSOP-70

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

TABLE 1

DAMAGE AND FATALITY SUMMARY
FY 1969 - SOVIET INITIATION WITH MEDIAN FORCE
COMBINED MILITARY AND URBAN ATTACK BY BOTH SIDES

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
47	77	62	51	55

VIET ALL-URBAN RETALIATION.
TIL AFTER SOVIET RESPONSE.

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
21	37	27	22	23

TH SERVICE PROPOSED FY 1974
SOVIET ALL-URBAN RETALIATION
FY 1974 DEFENSIVE FORCES.

UNITED STATES				
Fatalities (%)				MVA Destr (%)
Blast	CD 1	CD 2	CD 3	
less than 10	13	less than 10	less than 10	less than 10

~~TOP SECRET~~
 AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

TABLE 2

DAMAGE AND FATALITY SUMMARY

FY 1974 - SOVIET INITIATION WITH MEDIAN FORCE. COMBINED MILITARY
 AND URBAN ATTACK BY BOTH SIDES

6(1)

UNITED STATES						
MVA Destr %	US Defensive Force Mix	Fatalities (%)				MVA Destr %
		Blast	CD 1	CD 2	CD 3	
54	A. Basic Force; i.e., FY 1969 programmed area and terminal defense forces, including ASW.	46	73	59	49	52
54	B. Basic force, adjusted to sub- stitute 1974 USAF proposed area defense.	43	70	55	45	49
54	C. Basic force with 1974 US Army proposed ABM de- fense added (less SAM D). a/ 1/	37	61	45	39	40
54	D. Basic force replaced by 1974 US Army ABM and terminal bomber defense, and USAF area bomber defense. In- cludes ASW.	27	44	34	30	31

a/ An excursion was made employing the proposed Army deployment of SAM D forces for FY 74 with Force C, interlocking terminal defense with the NIKE X deployment. Results indicated that the SAM D would have the effect of

6(1)

In another excursion, the USAF proposed FY 74 area defense force was deployed with Force C. Although the Advanced Manned Interceptor was not applied against submarine launched cruise missiles, the kill probability indicates that the results would have been similar to those for the SAM D, had the deployment been optimized along the coasts. 1/2/3/

- 1/ See CSA view, Tab A, Appendix E
- 2/ See CNO view, Tab B, Appendix E
- 3/ See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

~~TOP SECRET~~

4. Strategic Offensive Systems

a. Introduction

(1) There are three major issues involved with respect to strategic offensive systems. First is the size of the MINUTEMAN force. The second issue is which manned bomber should be developed and/or deployed in the later JSOP time period. The third is the number of POLARIS B-3 (POSEIDON) that should be deployed in the later time period.

(2) Requirements for strategic offensive forces are affected most by alterations in the Soviet target list (particularly missile targets), deployment and performance of a Soviet antimissile system, qualitative improvements in Soviet missiles, such as improved accuracy and deployment of Soviet "Multiple Independent Re-entry Vehicles" (MIRV), and the improved capabilities of US strategic offensive systems. In the interim, there is planned development for increased accuracy, yield and MIRV for MINUTEMAN and POLARIS B-3 which might also dictate changes in the ballistic missile force for periods as late as 1974.

(3) With respect to a new bomber development, the point at issue is whether existing aircraft such as the B-52 and/or a strategic bomber version of the F-111 can be made to serve the purpose in the later JSOP time period without development of a new bomber. Because of the long development time associated with an aircraft such as AMSA (Advanced Manned Strategic Aircraft), it is considered necessary to make certain development

~~TOP SECRET~~

A-21

Section A
Part VI, JSOP-70

~~TOP SECRET~~

decisions as early as possible. Determination of the
ultimate bomber force size for 1974 and beyond might
well be influenced by future Soviet developments in
missile defense, bomber defense and submarine defense.

(4) Strategic offensive forces developed in this
analysis contain a mix of ICBMs, submarine launched
missiles and aircraft. The utility of such a mix for
both damage limiting and [REDACTED] is illustrated
in recent studies. It is estimated that at present
the Soviets have about 400,000 men assigned to air
defense. It is estimated also that they are allocating
the equivalent of about \$4-5 billion annually on air
defense. The significance of a Soviet expenditure of
such magnitude can be appreciated by comparing it with
planned US offensive and defensive budgets for the
next five years. For example, the projected average
FYPS&FP annual budget for all US strategic offensive
forces during the next five years is about \$4.1 billion,
or about equal to what the Soviets are spending on
bomber defense alone. By contrast, the projected
average FYPS&FP annual budget for all US continental
defense forces for the next five years is about \$1.6
billion or approximately one-third of that being spent
by the Soviets on bomber defense.

(5) For reasons of mathematical simplicity in
calculating missile requirements, POLARIS missiles
have been programmed predominantly against [REDACTED]
while MINUTEMAN has been programmed predominantly
against [REDACTED] The desirability of using a

~~TOP SECRET~~

A-22

Section A
Part VI, JSOP-70

~~TOP SECRET~~

mix of these two systems against [REDACTED] 1
targets is recognized and one system can be substituted 2
for the other against appropriate targets without 3
significantly affecting total missile requirements. 4

b. Forces for Attack of USSR [REDACTED] 5

(1) Offensive force requirements for the attack 6
b(1) of USSR [REDACTED] have been developed 7
with the same priority as those offensive forces 8
required for damage limiting. Both types of forces 9
are based on estimates of weapon systems performance 10
as provided by the applicable Services. 11

(2) The size and compositions of the [REDACTED] 12
[REDACTED] is influenced by the objective damage level, 13
assumed or estimated shelter effectiveness, estimated 14
numbers of defended urban complexes and the estimated 15
quality of such defenses. Downward revisions in some 16
of these factors, to which the offensive force is 17
sensitive, have resulted in an [REDACTED] 18
which is noticeably smaller than that developed in 19
the AGNWP study. Although the objective level of 20
destruction has remained at [REDACTED] 21

[REDACTED] the 22
earlier study was based on an assumption that the 23
Soviet Union would develop a full fallout shelter 24
program while this analysis assumes a Soviet shelter 25
program more nearly comparable with that of the 26
"Continuing Shelter Program" in the United States. 27
Offensive force requirements have also been decreased 28
by a revised DIA estimate which increases the 29

~~TOP SECRET~~

~~TOP SECRET~~

TOP SECRET

AS DEFINED BY ATOMIC ENERGY ACT OF 1954
TOP SECRET

penetration rate of US missiles against the Soviet
ABM from [redacted] per cent to [redacted] per cent. The number of
ABM defended complexes is assumed by DIA to increase
from [redacted] in the period 1969 to perhaps as many as
[redacted] in the 1974 period. A single [redacted]
[redacted] was used in the force interactions for
this analysis and in the AGNWP study. The chart
below shows the effect on offensive force requirements
of increasing the [redacted] between
the two periods of interest in this analysis. The
postulated Soviet ABM is, in both cases, inferior to
the United States ZEUS system and in no way comparable
with the estimated capability of NIKE-X. Requirement
calculations are based on no prelaunch damage to US
ICBMs. Should the Soviets selectively target US ICBMs,
particularly the TITAN IIs, the urban targeting capa-
bility of Soviet ICBMs would be substantially reduced
by the diversion to attack of missiles.

(b)(1)
US Force Inventory Requirements

POLARIS A-3	328	TITAN II	54
POLARIS A-2	105	POLARIS B-3	146
MINUTEMAN I	32	POLARIS A-3	303
MINUTEMAN II	48	B-52	28
B-52	<u>28</u>		
TOTAL delivery vehicles	541		531

1/ See CSA view, Tab A, Appendix E

TOP SECRET

A-24

Section A
Part VI, JSOP-70

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

TOP SECRET

The above chart indicates that total offensive
delivery vehicle requirements are approximately the
same for the different time periods, even though
the number of defended complexes has increased from

[REDACTED] This is made possible by the use of
TITAN II in a multiple warhead configuration and the
introduction of the POLARIS B-3 missile between the
period 1969 and 1974. [REDACTED]
additional A-3 weapons would be required to replace
the [REDACTED] in the force. Should the Soviets deploy
an ABM with NIKE-X capabilities, however, an increase
of [REDACTED] defended cities would create a requirement for
a significantly large increase in the total number of
delivery vehicles. Should they elect to target the
TITAN element of the 1974 force and should they achieve
[REDACTED] per cent destruction before launch, the remainder
of the POLARIS force plus [REDACTED] MINUTEMAN would have to
be withdrawn from [REDACTED] in order to achieve
the same [REDACTED]

(3) The [REDACTED] attack forces shown in the chart above
represent a reasonable requirement unless the number of
ABM defended cities is significantly less than estimated.
It seems clear that development of improved missile
penetration capabilities is essential if the Soviets
develop a significant ABM deployment. [REDACTED]
forces were designed to achieve [REDACTED]

[REDACTED] with the shelter
program assumed for the Soviets. Should the Soviets

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

develop a full fallout shelter program, the same attacks
would achieve

(b)(1)
Conversely, weapon

requirements would not be reduced, although fatalities
would be increased if the Soviets had a lesser shelter
program, due to the objective of

(b)(1)
(b)(1)
(b)(1)
(b)(1)
~~TOP SECRET~~

A-26

Section A
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

d. Damage Limiting Offensive Forces

(1) On the same priority with the requirement for forces necessary to assure destruction of the USSR, [REDACTED] is the requirement for damage limiting offensive forces. The utility of offensive missile and bomber forces in this role has been considered in the most recent damage limiting studies by the DDR&E and the CJCS Special Studies Group.* ^{1/} Although missile requirements are often calculated in different ways, there is agreement that [REDACTED]

(11)
The chart below shows the number of military targets which were attacked by missiles in both 1969 and 1974. [REDACTED]

* "A Summary Study of Strategic Offensive and Defensive Forces of the US & USSR," dated 8 Sept 1964 - Prepared for the Director of Defense Research and Engineering "Alternative General Nuclear War Postures" dated 15 Sept 1964 prepared by the CJCS Special Studies Group.

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

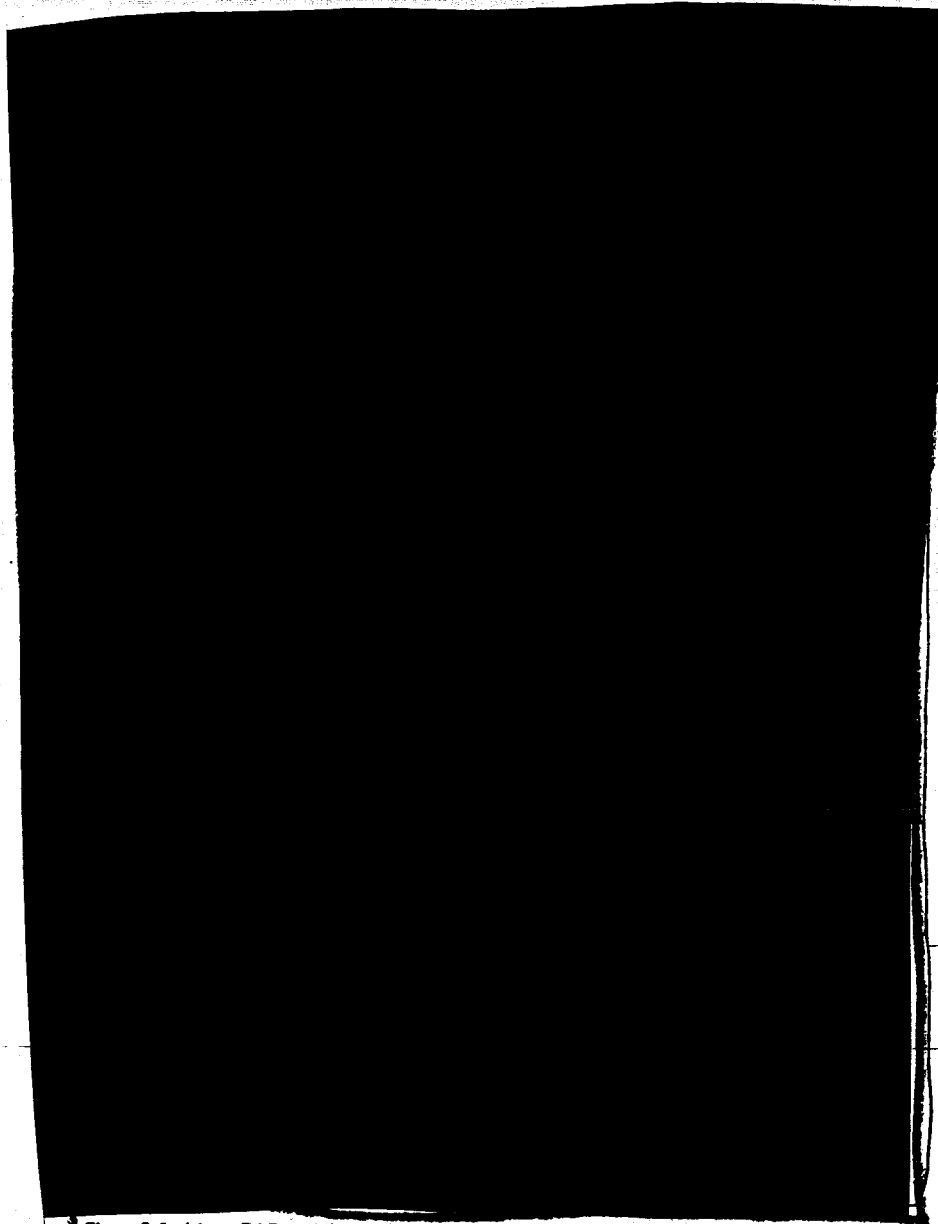
A-27

Section A
Part VI. JSOP-70

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~



1
2
3

4
5
6
7
8

Should the POLARIS A-3 surface ship MLF be introduced,
this force could be programmed to contribute to the
total requirement. Successful development of MIRV
capability in MINUTEMAN and POLARIS B-3 should also
increase the target programming capacity in the alert
force.

9
10
11
12
13
14

1/ See CSA view, Tab A, Appendix E

~~TOP SECRET~~

A-28

Section A
Part VI, JSOP-70

~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

(b)(1)
e. Mid-Range Ballistic Missiles. Neither of the two
previous calculations have taken into account the
possibility or probability of deploying offensive forces
such as land-based MRBMs, extended range PERSHING, or a
sea-based multilateral force.

However, funding for the MRBM has been
limited to development of command and control and guidance
sub-systems, among other reasons, because the system is
not politically acceptable at this time for the United States.

f. POLARIS B-3 (POSEIDON) Development

(1) Development of the POLARIS B-3 (POSEIDON) missile
can significantly improve the capability of the strategic
offensive force in the later JSOP time period. In
addition to having twice the payload of the present A-3,
it is estimated that the POLARIS B-3 (POSEIDON) against
a missile defense will have the capability to:

(b)(1)
[REDACTED]

~~TOP SECRET~~

(2) The B-3 (POSEIDON), with its increased yield and improved accuracy, should also have a significantly greater capability against hard targets than the A-2. Moreover, assuming US development of a successful MIRV, the POLARIS B-3 (POSEIDON) would carry multiple re-entry vehicles.

(3) The actual extent of retrofit with B-3 (POSEIDON) will depend on the extent of the antimissile deployment in the USSR, the Soviet threat and the success of the United States MIRV development.

g. Advanced Manned Strategic Aircraft Development

(1) The utility of manned strategic aircraft is illustrated by a DDR&E study,* which stated "a mixed force of ballistic missiles and aircraft can exploit weaknesses in enemy defenses and errors in defense allocations, allows accommodation to an unexpected strength in one element of the defense system, and forces the enemy to divert resources to multiple types of defense." Other recent strategic studies support these basic points.

(2) One of the significant observations in the DDR&E study with respect to the assured destruction task is that a mixed force of aircraft and ballistic missiles -- as distinct from a pure missile force -- could increase the enemy expenditures on terminal defenses by about 12 per cent to 25 per cent. Soviet costs in this case were based on a SAM D type terminal bomber defense. These costs would increase by 25 per cent to 60 per cent if the Soviets attempted to maintain a comparable capability with a less effective terminal bomber defense.

* The Utility of Future Manned Strategic Aircraft - Prepared for the Director of Defense Research and Engineering, dated 9 October 1964.

~~TOP SECRET~~

A-30

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

(3) With respect to damage limiting forces, the
DDR&E study suggests that, in general, a mixture of
one reliable missile per target followed by
reconnaissance strike aircraft shows a cost-utility
advantage when relatively high damage expectancies
are desired. For moderate ICBM and SRAM kill
probabilities ($P_k = 0.6$) destruction of enemy targets
is significantly less expensive with reconnaissance-
strike aircraft than with missiles.

(4) In the DDR&E study a cost effectiveness comparison
of different reconnaissance-strike aircraft indicates
that in most applications AMSA is somewhat more effective
than an RS-111, and an RS-52 has a cost advantage
relative to AMSA. For damage limiting purposes, however,
it is necessary for the B-52, when converted to an RS-52,
to be equipped with the necessary avionics to provide

(5) Perhaps the most important consideration with
respect to AMSA development is the structural life
expectancy of the B-52 force. The most recent study
of B-52 life expectancy (prepared by OASD and ODDR&E)
concluded, inter alia, that further major structural
modifications have been identified for each series
which, if effected, would provide reasonable assurance
of structural life extension through 1975. An important

~~TOP SECRET~~

A-31

Section A
Part VI, JSOP-70

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

consideration with respect to the B-52 is that aircraft structural life cannot be predicted with any degree of accuracy. As stated in the OSD study "our ability to predict the fatigue life of a particular airplane structure is poor."

(6) Considering the uncertainties regarding extension of the life of the B-52 until FY 1975 or beyond, and the time required to develop and deploy a replacement aircraft, it appears desirable to complete the Project Definition Phase for AMSA as soon as possible so that the Joint Chiefs of Staff can decide whether AMSA or another manned strategic aircraft should be developed.

h. Reduced US Bomber CEP. Subsequent to completion of the JSOP analysis, JSTPS advised that the United States B-52 and B-58 bomber CEP was being reduced from

(161)
A review of the weapon applications was made to determine what effect the CEP reduction by JSTPS would have on this analysis, and it was determined that there was no appreciable difference.

5. Defensive Systems

a. Introduction

(1) In order to discuss the effects of the various defensive systems, a series of calculations has been made to show comparative war outcomes for both the United States and USSR. Since fatalities and industrial damage are affected in a major way by the conditions of

~~TOP SECRET~~

war outbreak and targeting philosophy of both sides, 1
the comparative war outcomes are shown for certain 2
scenarios in addition to those basically examined. 3
The types of exchanges illustrated include a spectrum 4
of possible attacks and probably represent an extreme 5
in urban targeting at the higher fatality levels. 6
There is little evidence on which to base a judgment 7
of Soviet targeting philosophy; therefore, the 8
possible consequences of a large urban attack should 9
at least be recognized. 10

(2) Comparative war outcomes for FY 1969 and FY 1974 11
will be shown separately in subsequent charts. The 12
deployment of improved defensive systems for CONUS 13
cannot, for the most part, be completed until well 14
after 1969, the base year with which JSOP-70 is primarily 15
concerned. Nevertheless, that budget year at which 16
JSOP-70 is aimed will be concerned with certain develop- 17
ment and procurement decisions. Consequently, Soviet - 18
US nuclear exchanges with improved US defenses were 19
conducted for the FY 1974 time frame in order to 20
illustrate the damage-limiting capability of such systems. 21

The nuclear exchanges were conducted to assist in 22
evaluating defensive deployment levels, and to shed light 23
on development and early deployment decisions. 24

b. Relative War Outcomes, FY 1969 25

(1) The following chart shows relative war outcomes 26
for FY 1969. Defensive system improvements in this 27
time period, even if decisions were made soon, could be 28

~~TOP SECRET~~

A-33

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

expected to include only a fallout shelter program 1
and perhaps a very limited improvement in air defenses. 2
For this reason, the FY 1969 calculations include 3
fatalities only for two US shelter programs (no shelter 4
and full fallout shelter) and four scenarios. Soviet 5
fatalities are shown for three shelter programs equivalent 6
to US programs. 7

PERCENT NATIONAL FATALITIES - FY 1969

	US Fatalities (Shelter as indicated)
Case I ^{a/} All Urban (Soviet initiation. No US shelter)	85
Case II ^{a/} All urban (Soviet initiation. US full fallout shelter)	62
Case III Soviet All Urban US Combined Retal. (US full fallout shelter)	55
Case IV Soviet Combined Initiation-US Combined Retal. (US full fallout shelter)	48
Case V _____ (US _____ shelter)	26

a/ ~~_____~~

(2) Case I illustrates the high level of fatalities 8
which might conceivably occur without improved defenses. 9
No shelter program for the United States is assumed in 10
this case. Even though a shelter program has been 11
supported by the Secretary of Defense and the Joint 12
Chiefs of Staff, the probability of attainment by 1969 13
is becoming increasingly more doubtful. 14

~~TOP SECRET~~

A-34

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(3) Case II shows the effect, in terms of reduced
US fatalities, which might be achieved by a full
fallout shelter program. Weapon applications are
identical with those of Case I. The net result is a
US fatality reduction of about 23 per cent for a five-
year investment of about \$5 billion. All of the
remaining cases include a full fallout shelter program
for the United States.

(4) Case III adds to the U/I attack the effect of
using a portion of the United States offensive forces
against Soviet nuclear threat forces. Destruction
of Soviet residual weapons in this case reduces US
fatalities about seven per cent even though all Soviet
weapons are programmed against urban targets. Soviet
fatalities are reduced about 17 per cent by the changed
targeting.

(5) Case IV shows comparative war outcomes which
result from a Soviet initiative attack which includes
combined military and immediate urban targeting.
Military targeting in this case includes attack of all
soft nuclear threat targets in the United States as
well as the 54 hardened TITAN II sites. This case, or
variations thereof, with either more or less weapons
applied to military targets, represents the most
probable case of war initiation. Compared with Case III,
a Soviet attack on all of the soft ~~TOP SECRET~~ and
TITAN II reduces US fatalities by about seven per cent.

~~TOP SECRET~~

A-35

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(6) Case V shows the results of a [REDACTED] which is followed by Soviet retaliation with weapons which survive the United States missile attack applied to US cities. The US urban attack is executed following Soviet retaliation. US fatalities in this type attack can be reduced another 22 percent or to a level of about 25 - 30 percent.

(7) Two points might be made from this series of FY 1969 nuclear exchanges. The first point is that a full fallout shelter program can result in significant fatality reductions even in the most severe type of urban attack. It would appear that increased effort should be made to complete this program prior to FY 1969, as a first step in the achievement of a balanced damage limiting force for the mid-1970s. The second point to be made is that a portion of the offensive force can contribute to damage limiting irrespective of the conditions of war outbreak.

c. Relative War Outcome, FY 1974

(1) The following chart shows relative war outcomes for FY 1974. Assuming that timely decisions are made and that weapon deployments follow, soon after each new weapon system demonstration, FY 1974 represents very nearly the earliest time period in which the United States could achieve a balanced damage limiting posture. Shelter assumptions for both the United States and USSR are identical with those indicated for FY 1969.

~~TOP SECRET~~

A-36

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

PERCENT NATIONAL FATALITIES - FY 1974

US Fatalities
(Shelter as Indicate

Case I ^{a/}	All Urban (Soviet initiation.. No US shelter)	84
Case II ^{a/}	All Urban (Soviet initiation.. US full fallout shelter)	61
Case III	Soviet All Urban (US Combined Retal. and full fallout shelter)	54
Case IV	Soviet Combined Initiation (FY 1969 Approved US Def. Force and full fallout shelter)	51
Case V	Case IV / NIKE-X at 47 cities	38
Case VI	Case IV / NIKE-X at 47 cities and Improved Air Def. Forces	32
Case VII	_____ with Case VI Forces	Less than 10

^{a/} ~~_____~~

(2) Fatalities for Cases I through III in 1974 are almost identical with those for 1969. US fatalities in each of the three cases are about one percent lower in 1974 primarily due to a smaller bomber threat estimated for the later time period.

(3) Case IV shows the result of a Soviet initiative attack which includes an immediate attack on urban areas in combination with an attack on all soft military

~~TOP SECRET~~

A-37

Section A
Part VI, JSOP-70

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

targets. A comparison of US fatalities for Cases III 1
and IV indicates that the Soviet weapons required for 2
attack of all soft military targets would, if retargeted 3
to urban areas, destroy about four percent more of our 4
population (both assume a US full fallout shelter 5
program but no other defense improvement). TITAN II 6
missiles were not attacked in this case, which might be 7
considered somewhat unrealistic in view of the large 8
urban destruction capability of this large payload, 9
limited deployment system. For this illustration, 10
targeting has been treated in this manner in order to 11
keep the urban attack force constant with improved 12
defenses, thereby providing a more meaningful measure- 13
ment of NIKE-X capability. Should the TITANs be 14
attacked, a force of 80 inventory SS-9s would be required 15
and US fatalities would be decreased by about three 16
percent. 17

(4) Case V shows the effect of adding a 47 city 18
NIKE-X deployment (about 14,000 SPRINT interceptors) to 19
the FY 1969 defensive forces of Case IV. It can be 20
seen that an antimissile defense of this type would be 21
expected to reduce US fatalities by about 13 percent. 22

(5) Case VI shows the effect of adding an improved 23
bomber defense and NIKE-X deployment of Case V. With 24
the Soviet bomber and sub-launched missile threats 25
currently postulated for the FY 1974 time period, the 26
fatality results indicated here might reasonably be 27
achieved by the deployment combination of SAM D, 28
advanced manned interceptors, including AWACS, and 29
improved ASW forces including Phase II SOSUS. Should 30

~~TOP SECRET~~

~~TOP SECRET~~

there be any significant improvement in the threat
in terms of speed or ASM capability, the combination
of improved air defense and ASW systems would
undoubtedly provide distinct advantages. The chart
indicates that with the estimated threat, an improved
combination of terminal and area bomber defense and
ASW forces can reduce US fatalities by an additional
six percent.

(6) Case VII shows the result of a [REDACTED]
attack with the United States having a fully deployed
and balanced damage limiting force. In this case, all
Soviet weapons surviving the United States missile
attack were programmed against urban targets. The
calculations indicated on the chart suggest that in
this type attack, US fatalities might be reduced to a
level of less than ten percent with a balanced damage
limiting posture. The contribution of improved active
defenses at this lower end of the spectrum can be
measured by comparing the 1969 results (26 percent
US fatalities TABLE, page 34), with the 1974 results
(less than ten percent fatalities TABLE, page 37).
This case might also be fairly representative of
certain other scenarios involving relatively low order
urban attacks. For example, a Soviet first strike, but
with urban attacks delayed, might result in fatalities
no greater than indicated above. It is also possible
that the Soviets might employ a significant portion of
their ICBMs against hard US missile sites in which case
fatality levels should be lower than those of the Soviet

~~TOP SECRET~~

A-39

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

initiative attack cases above. Other examples could
consider the possibility of controlled urban attacks
in which only a limited number of key cities would be
hit. Improved defenses would be particularly meaningful
in this type attack, or in a similar attack of limited
size by an emerging nuclear power in future years.

(7) Several points might be made from this series
of 1974 exchanges which are in addition to those
already mentioned with respect to the 1969 games. The
first point is that without improved US active defenses,
Soviet war outcomes are always substantially better than
those of the United States

~~_____~~ This relationship holds true even when
~~it is assumed~~ that the United States has a full fallout
shelter program and the Soviets have only an intermediate
shelter program. Adverse war outcomes for the United
States result in large part from the greater concentra-
tion and vulnerability of US population and can only
be overcome by greater investment in damage limiting
forces and civil defense.

(8) The second point is that deployment of a
balanced damage limiting force (including a full
fallout shelter program) will reduce US fatalities
substantially, as shown on the chart,
page 37.

d. Defense Against Submarine-Launched Missiles

(1) Naval ASW forces used to counter the submarine-
launched missile threat and employed in the analysis
are the same as those provided in the Navy input to

~~TOP SECRET~~

A-40

Section A
Part VI, JSOP-70

the AGNWP study. These forces are included under
Program III, General Purpose Forces.

(2) The effectiveness of ASW forces in reducing
US fatalities is particularly sensitive to the
targeting of submarine-launched missiles. Further,
it is extremely difficult to measure the contribution
of any area defense in an urban attack employing many
different systems. For example, the recent DIA
estimates adding [REDACTED] to the
Soviet inventory of ICBMs have resulted in postulation
of a more formidable capability to destroy the United
States industrial base. In exercising the Soviet force
in aggregated war games, the higher yield weapons were
targeted on the more heavily populated urban areas,
with the result that the Soviet missile submarine force
with its lower yield weapons was targeted against cities
next in priority. When NIKE-X was deployed in the
FY 1974 period, only the cruise missiles had a real
capability against these cities, but this capability was
countered by the deployment of the SAM D. Although
not employed in this role in this analysis, the advanced
manned interceptor also could have been employed against
cruise missiles.^{1/} Therefore, except in selected cases,
submarine launched ballistic missiles were targeted on
the intermediate cities because of their capability to
penetrate the HAWK and HERCULES defenses. This method
of employment for weapons targeted against urban areas
was considered to provide the highest return in US
fatalities for Soviet SLBM capability.

^{1/} See CSA view, Tab A, Appendix E.

~~TOP SECRET~~

A-41

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(3) To gain a better appreciation of the submarine potential, it should be recognized that another Soviet targeting philosophy might be considered which employs the ICBMs and bomber delivered weapons against the United States nuclear threat and associated command and control installations and the submarine-launched weapons on the major urban areas within range. Such a philosophy might be characteristic of a Soviet 1969 military attack option with a delayed, rather than a combined, urban attack. Using all 67 Soviet submarines at sea in the urban attack role and not considering attrition by ASW forces, the combined total of 292 missiles could obtain the following industrial damage and fatalities for each of the three civil defense postures expressed in a percentage of the national total:

Fatalities (%)			MVA Destroyed (%)
CD 1	CD 2	CD 3	
48	36	26	23

(4) Using the Program III ASW forces which normally would be engaged in CONUS defense at the time of a Soviet surprise attack, attrition of 25 percent Soviet missiles was assumed in the analysis. On the other hand, in a period of crisis with ASW forces fully generated and positioned to best advantage, the attrition of Soviet missiles was assumed to be 75 percent. Results of the Soviet attack under these ASW postures are tabulated below and compared with the preceding case of no attrition:

~~TOP SECRET~~

A-42

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

Attrition	Fatalities (%)			MVA Destroyed (%)
	CD 1	CD 2	CD 3	
0	48	36	26	23
25	45	33	24	22
75	35	24	16	15

(5) It may be seen from the above that although
the Soviet missile submarine force may not possess the
weight of effort of the strategic rocket force, it
still represents a formidable capability to damage the
United States. It also shows that even with 75 percent
of the at-sea weapons destroyed, a few weapons penetrating
the defenses and impacting in the large cities can
inflict as high as 35 percent national fatalities with
no fallout shelter posture. This estimated performance
of the ASW forces is creditable, but a requirement to
attain a greater capability is still of prime importance.
The Navy's capability against the submarine-launched
missile force employed against the CONUS could be
improved by increasing the effectiveness of ASW forces
assigned to the CONUS defense role. Unless additional
ASW forces were authorized, this would necessarily be
at the expense of other tasks. In addition, improvement
of current ASW weapon systems and increased research
and development in the ASW field, should be supported
in order to increase effectiveness against this threat.^{1/}

(6) The SOSUS system with Phase II completed was
essential to obtaining the attrition factors employed
in this analysis. In turn, these factors were based

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

upon results of the Navy's CYCLOPS II study and
Damage Limiting Study, which evaluated the effectiveness
of SOSUS against reduced Soviet submarine noise levels,
and based on localization and detection capabilities
which were derived from actual system performance. These
studies concluded that with Phase I,

(b)(1)
(b)(1)
reduction in the estimated number of submarine-launched
missiles located and destroyed in force interactions
would be anticipated if Phase II is not completed; with
correspondingly larger damage and fatalities to the
United States.^{1/}

(7) In summary, under the targeting philosophy
assumed and conditions examined, submarine launched
missiles constituted a relatively small portion of the
total destructive capability of the Soviet Union as
long as the United States had no defense systems for
use against ICBMs with their higher payloads and limited
capability against bombers. As the latter two threats
were countered by deployment of FY 1974 area and
terminal defenses, the submarine-launched missile
threat became relatively more significant. In the

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

A-44

Section A
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

FY 1974 force analysis, SLEMs were applied against
 undefended cities, except that those on station at
 initiation of attack were applied against US bomber
 bases and resulted in a reduction of US bomber
 capability. The threat of such employment exists
 today and will exist in the future unless effectively
 countered by ASW forces and missile defenses.^{1/}

e. Advanced Defensive Systems

(1) Antiballistic Missile Defense

(a) The NIKE-X deployed at 47 major complexes
 in the analysis represents one variant of a IO-MAR
 deployment concept. Multifunction-Array Radars
 (MAR) were deployed at 16 (of the 47) high-value
 urban complexes. The number of SPRINT defensive
 missiles distributed at each of the 16 complexes
 is indicated in Tab F to Appendix B. At the
 remaining 31 complexes, Missile Site Radars (MSR)
 only were deployed; these defenses excluded MARS.
 At each of the latter 31 cities, an inventory of
 160 SPRINT missiles were assigned; this inventory
 was selected based on the SS-9 threat model of
 61 re-entry objects. Such an inventory permits
 engagement of warheads and decoys from two arriving
 SS-9 payloads, forcing the USSR to allocate over
 three ready SS-9 missiles in order to obtain a
 high assurance of exhausting the inventories.

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

A-45

Section A
 Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(b) In the various Soviet attacks against
any given urban complex, it was assumed that
the USSR programmed a quantity of multiple
warhead/decoy missiles (SS-9 or SS-7) adequate
to provide a 90 per cent assurance of exhausting
the known defense inventory at that complex.
It was also assumed that the Soviets knew the
ABM system performance and firing doctrine.
Following the probable exhaustion of defense
missiles at an urban complex, high-yield missiles
were launched for destruction of the complexes.

b(1) [REDACTED] The number of
complexes which could be attacked with high
assurances in this manner by ICBMs varied from
14-22.

(c) Unlike submarine-launched cruise
missiles, it was assumed that the submarine-
launched ballistic missiles could not profitably
be programmed against ABM defended cities.

The penetrational capabilities of the latter
against the ballistic missile defense were
inferior to that of the high payload multiple
warhead ICBMs and their use against non-exhausted
defenses was considered impractical. Likewise,
their use against cities, following exhaustion
attacks by ICBMs, did not appear suitably
remunerative in that the cost of exhaustion

~~TOP SECRET~~

A-46

Section A to
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

in terms of offensive missiles was such that
ICBMs with higher yield warheads were called
for to exploit the situation rapidly and to
produce damage commensurate with offensive
expenditures.

(d) Throughout this study, it has been
assumed that the NIKE-X system cannot dis-
criminate the Soviet decoys from the multiple-
warheads. This assumption represents a judg-
ment by DDR&E that decoys of the type and
weight used in this analysis will not be
distinguishable from small warheads and will,
therefore, have to be taken under attack by
NIKE-X. The prospects for discrimination of
low cross-section decoys is, however, not yet
determined; there are competent adherents to
both views as to the feasibility of discrimina-
tion of such decoys as were used herein.
Because there are uncertainties with respect
to decoy discrimination, an excursion was con-
ducted to ascertain the effects of such a
capability on war outcomes for the United
States. These results are tabulated below
for the case of Soviet Initiation with a
combined military and immediate urban attack.
A balanced damage limiting force with a full
fallout shelter program is included for
both cases.

~~TOP SECRET~~

A-47

Section A to
Part VI, JSOP-70

~~TOP SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954
~~TOP SECRET~~

~~TOP SECRET~~

	NATIONAL FATALITIES (%)	MVA (% DESTR.)
NIKE-X (No Discrimination Cap.)	32	33
NIKE-X (With Discrimination Cap.)*	less than 10	less than 10

From these data, and from corresponding 1
excursions of the AGNWP, it can be observed 2
that a discrimination capability, if attained, 3
would result in a significant reduction of 4
national damage. 5

(e) It may be possible to approach these 6
lower levels (associated above with the discri- 7
mination capability) in the defended cities even 8
without assuming a discrimination capability. 9
Only a single firing doctrine was employed in 10
this study. It is probable that various 11
alternative firing doctrines would be available 12
in the NIKE-X computer, each to be adopted in 13
accordance with the type of attack seen by the 14
NIKE-X radars, and with changes in firing 15
doctrine to occur as the missile attack 16
progresses. As the inventories reach pre- 17
determined levels of expenditure, an alternative 18
firing doctrine might be adopted such that the 19
defense would cease to fire SPRINT missiles 20
reprogrammed for "late aborts." At some higher 21
level of expenditure, perhaps the defense would 22

* The excursion assumes that the Soviet decoys are substantially identified as such, and are therefore not engaged by NIKE-X. It follows that the SPRINT inventories at the respective defended complexes would not be exhausted.

b(1)

DOE
b(13)

~~TOP SECRET~~

A-48

Section A to
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

fire a single unprogrammed SPRINT missile at each
undiscriminated object. Each such shift in firing
doctrine conserves these missiles at the expense of
more "objects" penetrating the defense.

b1
The resultant fatality and damage figures

in such a case (without assumption of a discrimination
capability) would be at some point intermediate
between those tabulated for the discrimination case
and those based on no discrimination.

(f) There are, of course, many major and minor
areas of sensitivity involved in developing studies
of future force requirements. Discussed below are
some of the areas of uncertainty which have an
important bearing on the effectiveness of the NIKE-X
system.

1. There is no urgency for the USSR to
develop and test multiple warhead/decoy payloads
for ICBMs until a US ABM is in the offing.^{1/} This
may account for the lack of intelligence evidence
on which to base Soviet threat models. For this
reason, the Soviet multiple-warhead configurations

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

A-49

Section A
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

employed on ICEMs, tabulated below, were
developed by DDR&E based on judgments as
to US state-of-the-art in the 1970s.
This state-of-the-art was then applied
to intelligence estimates of Soviet missile
payloads as follows:

	<u>Decoys</u>
SS-9	50
SS-7	22

00E
b(3)

The DDR&E judgment that led to these
threat models, in conjunction with his
judgment that the NIKE-X cannot discriminate
the Soviet decoys from the multiple war-
heads, significantly affects the fatality
and damage results of the cases involving
NIKE-X deployments. The bulk of the
damage in these cases results from ICBM
attacks following exhaustion of the ABM
defenses. Should either or both of these
judgments used in the calculation of this
study (as to threat model configurations
or ABM discrimination capability) prove
faulty, the Soviet capability, the fatality
and damage percentages would be subject
to change.

2. In the development of these nuclear
exchanges involving missile defenses,
SS-9 and SS-7 missiles using the above
threat models, have been programmed to

~~TOP SECRET~~

A-50

Section A to
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~

~~TOP SECRET~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

obtain a 90 percent probability of 1
exhaustion at each complex attacked. It 2
should be recognized that these calculations 3
are based on exact knowledge of US defensive 4
missile inventory and distribution, US ABM 5
performance factors and defensive firing 6
doctrines. It is certain that exact 7
programming for exhaustion is not practically 8
attainable. If penetration by means of 9
defensive inventory exhaustion is desired, 10
overprogramming must be carried out to 11
obtain an actual high assurance of achieving 12
the fatality and damage levels presented 13
herein for the cases involving NIKE-X. 14
The offense must overprogram to some 15
degree to protect against uncertain know- 16
ledge of his own offensive missile perform- 17
ance, and to a further extent to account for 18
a probable lack of knowledge of defensive 19
firing doctrine (as discussed above). 20
If he fails to overprogram to accommodate 21
these variables, he runs the risk of an 22
actual underprogrammed attack and little 23
damage would result from an already large 24
expenditure of missile forces. If he over- 25
programs, however, he cannot attack as many 26
major complexes as were attacked on a 27
purely mathematical basis in the calculated 28
force interactions herein. 29

~~TOP SECRET~~

A-51

Section A to
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(g) In summary, if any of the foregoing 1
uncertainties concerning discrimination, 2
alternate firing doctrines, overprogramming, 3
and poorer Soviet threat models occur, meaningful 4
reductions in US damage and fatality figures 5
would result. If they occur in combination, 6
the reduction would indeed be significant.^{1/} 7

(h) The NIKE-X system has been designed 8
to permit deployment in a modular or building 9
block approach. The specific deployment alter- 10
native need not be selected at this 11
time. Deployment decisions are keyed to phases 12
and can be made at essentially yearly intervals. 13
At this time, a decision is required to preserve 14
the option to deploy NIKE-X at the earliest 15
initial operational capability (IOC) date 16
for the first defense complex. 17

(2) Bomber Defenses 18

(a) Both terminal and area bomber defenses 19
have been examined in this analysis. In order 20
to gain a better appreciation of the US defense, 21
a Soviet 1974 targeting excursion was examined 22
which, because of the NIKE-X deployment at the 23
47 most important US cities, applied ICBMs 24
and SLBMs to the military attack, and only 25
the bomber delivered weapons and submarine 26
launched cruise missiles to the attack of the 27
metropolitan areas defended by NIKE-X. This 28
might also approximate the situation in an 29
all-urban attack if the uncertainties concerning 30

^{1/} See CSAF views, Tab C, Appendix E

~~TOP SECRET~~

A-52

Section A to
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

NIKE-X work in favor of the United States. The
interaction of this force with various combina-
tions of area and terminal defenses is shown
in the chart below in terms of percentage of
national MVA destroyed and fatalities under the
three US fallout shelter postures.

DAMAGE AND FATALITIES WITH 47 METROPOLITAN
COMPLEXES DEFENDED BY NIKE-X, FY 1974

DEFENSIVE MIX	NATIONAL FATALITIES %			NATIONAL MVA % DESTR
	CD 1	CD 2	CD 3	
Case I NIKE-X plus FY 69 Air and ASW Area Defenses Only (less terminal defense)	55	42	32	28
Case II NIKE-X plus FY 69 Air and ASW Area Defenses plus NIKE-HERCULES Terminal Defense at 24 Cities	46	34	25	22
Case III* NIKE-X plus FY 74 ASW Area Defense plus FY 74 Air Force Area Defense (less terminal defense)	40	28	20	18
Case IV* NIKE-X plus FY 74 Air Force and ASW Area Defense plus SAM D at 47 Cities	less than 25%	less than 15%	less than 10%	less than 10%

Referring to the chart above:

1. Case I. Indicates damage and fatalities
in the 47 NIKE-X defended complexes resulting
from penetration of the FY 1969 programmed
area defenses. For illustrative purposes

* In Cases III and IV the F-12 was not programmed
against SLCMs.

~~TOP SECRET~~

A-53

Section A to
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

and although required, no terminal defenses 1
 have been considered in targeting Soviet weapons 2
 or in computing damage. This case provides the 3
 base force necessary to evaluate the NIKE HERCULES 4
 contribution in reducing fatalities shown in 5
 Case II. 6

2. Case II. Indicates that NIKE HERCULES 7
 terminal defenses are deployed around the 24 8
 most important of these urban areas, which also 9
 contain between four and five times as much 10
 population and industry as the balance of the 11
 47 urban areas. Weight of Soviet effort has 12
 been programmed to consider not only terminal 13
 defenses but target importance. This provides 14
 a measure of effectiveness of 1969 terminal 15
 defense, which amounts to about seven percent 16
 reduction in fatalities under a full fallout 17
 shelter. 18

3. Case III. The substitution of an 19
 Advanced Manned Interceptor for programmed 20
 FY 1969 interceptor forces virtually eliminates 21
 the manned bomber and ASM threat. Fatalities 22
 and damage can be attributed almost entirely to 23
 the submarine-launched cruise missiles. In this 24
 instance the AMI deployment reduced fatalities 25
 12 percent in a full fallout shelter posture 26
 when compared with Case I. For illustrative 27
 purposes, no terminal bomber defense forces 28
 were deployed. 29

~~TOP SECRET~~

A-54

Section A
 Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

4. Case IV. This case shows the effect of 1
the FY 1974 proposed air, missile and ASW defense 2
forces in reducing US fatalities. In a full 3
fallout shelter posture, fatalities and industrial 4
damage are lowered below ten percent by the 5
deployment of the SAM D. 6

(b) The above cases illustrate that the best 7
defense is achieved by a combination of both area 8
and terminal defenses. The HIP/HAWK deployment 9
proposed by the Army for 1974 as a terminal defense 10
for the 175 US cities of over 30,000 population was 11
not exercised in the Case III example. Had a portion 12
of the bomber-delivered weapons and cruise missiles 13
been programmed against HAWK defended cities, 14
virtually the same force interaction as in Case IV 15
deploying SAM D would have resulted with somewhat 16
lower damage and fatality figures. Terminal and 17
area defenses are discussed specifically in the 18
following paragraphs. 19

(3) Terminal Bomber Defense^{1/} 20

(a) The NIKE HERCULES is the principal terminal 21
defense system currently deployed in the CONUS. 22
Changing offensive tactics has caused this system 23
to lose a large measure of its original effectiveness 24
and changes in the Soviet threat and weapon systems 25
has made many of the deployments obsolete. There 26
will, however, remain a serious deficiency in low 27
level terminal defense irrespective of the eventual 28

^{1/} See CSAF view, Tab C, Appendix E

~~TOP SECRET~~

A-55

Section A
Part VI, JSOP-70

decisions on the redeployment of HERCULES. The HAWK 1
 missile system was designed to redress degraded 2
 capabilities of NIKE HERCULES at low altitudes in 3
 the theaters, but has not been generally deployed in 4
 that manner in CONUS. It has limited high altitude 5
 capabilities, however, and must be deployed in 6
 combination with HERCULES. It has a capability 7
 against cruise missiles and other air supported 8
 threats but no capability against submarine-launched 9
 ballistic missiles with the range capabilities 10
 postulated. 11

(b) The advanced terminal defense system considered 12
 in this analysis is the SAM D which could provide a 13
 relatively high capacity defense against bombers and 14
 cruise missiles as well as a defense against ballistic 15
 missiles of medium to short ranges. The latter 16
 capability would include terminal defense against 17
 the Soviet SLBM systems of currently estimated 18
 characteristics. The system would be designed for 19
 defense against low altitude, as well as high altitude 20
 air-supported threats and would serve to supplant 21
 both the NIKE HERCULES and the HAWK systems. For 22
 this analysis it was deployed and interlocked with 23
 NIKE-X at 47 major urban complexes in the United 24
 States. In addition, the next 175 largest cities 25
 were defended by the HIP/HAWK. The HAWK defenses 26
 considered for this deployment represent a redeploy- 27
 ment in the 1970s of 84 HAWK batteries currently 28
 programmed for theater defenses (plus a small number 29

~~TOP SECRET~~

A-56

Section A
 Part VI, JSOP-70

~~TOP SECRET~~

of battery equipment sets from other sources). It
was assumed for this purpose that more advanced air
defense requirements in the theater would be met
by theater deployment of SAM D thereby releasing
the mobile HAWK units for use in CONUS. This
deployment of HAWK involves employment of single
platoon defenses at intermediate cities.

(c) If successful in development and test
the SAM D system offers prospects for a signifi-
cantly improved terminal defense capability against
current and more advanced threats, including
multiple target threats. Introduction of the
phased array radar would permit a single defense
to take under attack up to 24 simultaneously
arriving vehicles in contrast to the HAWK capa-
bility of defending against a single object at
any given time. The SAM D would also offer a
significantly improved terminal capability for
defense of CONUS if the future Soviet bomber
threat should include such weapons as short-range
attack missiles (SRAM). Developed as a mobile
system, the SAM D should have world-wide appli-
cation for a number of years in the future.

(d) While addition of HAWK to the HERCULES
deployments might be desirable on an interim
basis against the currently estimated Soviet
threat to CONUS, the SAM D combat performance
would be a far superior follow-on capability
and would avoid early obsolescence of newly
deployed defensive systems.

~~TOP SECRET~~

A-57

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(4) Area Bomber Defense

(a) The principal area bomber defense of CONUS currently consists of Century series interceptors and BOMARC missiles. Both have a limited capability against low penetrating vehicles. The CONUS defense force has been reduced from 56 active Air Defense Squadrons or about 1,200 interceptors in 1959 to 39 squadrons or 838 aircraft today. Currently, the Air National Guard interceptor force totals 22 squadrons or 481 aircraft. Some of the reductions were proposed by the Air Force on the assumption that a more effective interceptor would be introduced into the inventory concurrently with phase-out of the obsolescing interceptors. Reductions to the forces were approved without the corresponding deployment of a new manned interceptor.

(b) The USAF "Continental Air Defense" and "Blue Dart" studies show that of the two Advanced Manned Interceptors under current consideration, both significantly improve our damage limiting capability. The choice is between the F-12 and an interceptor version of the F-111. The "Blue Dart" study concludes that:

"The TFX and IMI are highly competitive against a small-unimproved subsonic threat. A qualitative improvement of the Soviet threat by introduction of standoff ASMs would cause a substantial reduction of the TFX capability. The TFX and IMI are competitive against a large subsonic threat (such as the DIA/OIEP), but the IMI has

~~TOP SECRET~~

A-58

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

an advantage. The IMI is significantly more effective than the TFX against a subsonic threat employing ASMs. The IMI is markedly superior to the TFX against an advanced supersonic bomber threat such as the AMSA."

A comparison of aircraft performance indicates that the F-12 is superior to the F-111 in certain characteristics significant in Air Defense. Speed is one of the most important characteristics and the F-12 is [redacted] percent or almost [redacted] nm per hour faster (MACH 3.2 VS [redacted]). The F-12 can sustain MACH 3.2 in excess of 70,000 feet for its entire mission and reach altitudes approaching 100,000 feet.

6(1)
[redacted]
In terms of mission performance, the F-12 can make an intercept at 1,300 nm and return to departure base in 1:45 hours [redacted]

With this type of performance, greater flexibility in time and place of intercept and in number of sorties is provided with the F-12. In addition, the F-12 will carry twice as many missiles internally as the F-111. A choice based on combat capability as well as cost effectiveness, will have to be made between the two manned interceptors.^{1/}

^{1/} See CNO views, Tab B, Appendix E.

~~TOP SECRET~~

A-59

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(c) In summation, the point to be made with respect to area bomber defense is that an early decision between the F-12 and F-111 is necessary, if a balanced damage limiting force is to be achieved by 1974, to preclude prohibitively high annual budgets in the later JSOP time period.

6. Consideration of Requirements of Unified and Specified

Commands

a. General

(1) Force requirements of the various major commands have been considered in the development of JSOP-70 force levels. The absence of a recommendation to develop certain advanced systems is not intended to prejudge the utility or future requirement for these weapons. In some cases, final decisions cannot be made at this time, in others it has been found necessary to restrict the number of new weapon developments in order to remain within reasonable budget levels for strategic offensive and defensive forces.

(2) The [redacted] target lists in Appendix C are believed to include all the [redacted]

(b)(1) [redacted] The following comments pertain to specific weapon systems which have not been included in this analysis for early development.

~~TOP SECRET~~

A-60

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

b. Mobile MINUTEMAN

(1) MINUTEMAN in the mobile configuration is not recommended at this time due to higher system costs and estimated high survival probability for the hard and dispersed MINUTEMAN in the JSOP-70 time period. Five-year system costs for the rail mobile version of MINUTEMAN are estimated to be about 1.8 times the cost of the same system in the hard and dispersed configuration. So long as the United States retains numerical superiority in ICBMs it might reasonably be expected that each added US missile will survive. A comparison of the current Soviet missile force with the large target list represented by MINUTEMAN suggests that the CINCSAC estimate of 90-100 percent prelaunch survival for hardened MINUTEMAN is reasonable and is supported by the 95 percent factor used in SIOP planning. Should intelligence confirm that the Soviets intend to develop a significant MIRV capability, it may be desirable or necessary to deploy either additional sea-based missiles, a mobile version of MINUTEMAN, or other versions of mobile missile systems. The size of such a force, if it were developed, would be influenced by the missile force capability, US success with MIRV development and Soviet target developments.

c. ICBM-X

(1) The increased capability of a large payload MINUTEMAN to penetrate a sophisticated antimissile system is recognized. However, it is not possible

Section A
Part VI, JSOP-70

A-61

~~TOP SECRET~~

~~TOP SECRET~~

at the present time to predict either the qualitative
characteristics or quantitative deployments of future
Soviet antimissile systems. It would appear that the
time required to make a significant deployment of a
Soviet defensive system like NIKE-X would be sufficient
to allow the United States to deploy an improved
capability ICBM, POLARIS B-3 or both. With anti-
cipated improvements in CEP and yield for MINUTEMAN
II, the ICBM-X in a unitary warhead version would
provide little additional improvement in hard target
damage expectancies. A successful MIRV development
in combination with the increased payload capa-
bility of ICBM-X would make a large improvement in
the military targeting capability of the US missile
force. Development decision for ICBM-X need not
be made pending further intelligence regarding
Soviet weapon developments and development of new
US weapons.^{1/}

d. Airborne Alert Weapon System

(1) The AAWS is not recommended for early develop-
ment. High development costs for advanced strategic
aircraft makes the concurrent development of two such
systems almost cost prohibitive. A recommendation
has been made by the Air Force in favor of the AMSA.
There are a number of features which tend to support
this recommendation:

(a) The look-shoot capability of the AMSA
permits target discrimination and the achievement
of high damage expectancies on residual forces.

^{1/} See CSAF views, Tab C, Appendix E.

~~TOP SECRET~~

A-62

Section A
Part VI, JSOP-70

~~TOP SECRET~~

(b) AMSA provides an inherent reconnaissance capability which is not available with the AAWS standoff launches.

(c) The AMSA-launched SRAM would have a better penetration capability against improved air defense such as SAM D or HIP/HAWK.

e. Additional B-58s

(1) Structural problems associated with retention of the B-52 fleet into the 1970s are recognized. In view of B-58 production termination, however, a bomber version of the F-111 is considered a better hedge against catastrophic failure of the B-52 force. Further study will be required to determine whether or not an F-111 version should be procured.

f. CINCONAD Interceptor Force

(1) CINCONAD's submission of an interceptor force structure for FY 1969 and FY 1974, consisted primarily of 198 and 216 IMIs, respectively. However, for the purposes of this analysis in the FY 1974 time period, the Air Force proposed force level of 144 F-12s was used to develop force interactions.

7. Key Uncertainties

a. Described hereafter are major uncertainties in the assumptions, in context of which the JSOP-70 analysis should be viewed. Only those which affect the results adversely for the United States are mentioned in detail.

(1) If the Soviets deploy a combination of improved defenses; e.g., achieve a missile defense similar to NIKE-X, area bomber defenses similar to

Section A
Part VI, JSOP-70

~~TOP SECRET~~

A-63

~~TOP SECRET~~

the Advanced Manned Interceptor or Terminal Defenses similar to SAM D and HAWK, or a major breakthrough in ASW capability, US strategic offensive forces as now envisioned would be inadequate.

(2) One of the principal uncertainties affecting US offensive forces in future years is the possibility of Soviet development of a MIRV capability. Survivability of US land-based systems has been largely assured through hardening of missile sites and numerical superiority in delivery systems which constitute a target list of such size that only a fraction can be targeted with the smaller inventory of Soviet weapons. If the Soviets develop a MIRV capability on their larger payload missiles, it could require the United States to take additional action to increase ICBM survivability.^{1/} However, the number of SS-9s required to attack the entire nuclear threat list in the United States would be large even with a MIRV capability; and, for any given Soviet missile force, might well reduce the number of missiles employed on urban targets.

(3) One of the uncertainties affecting a US defensive force in future years is the possibility of Soviet development of improved aerodynamic systems.

(4) JSOP-70 analysis results are predicated on the assumptions that operational capabilities for US weapon systems will be within the state-of-the-art. This becomes especially important in the

^{1/} See CSAF view, Tab C, Appendix E.

~~TOP SECRET~~

A-64

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

1974 period. System performance may be degraded by
certain effects found from past nuclear testing
to be associated with a nuclear environment. Among
these are interference with electronic systems and
communications through ionization, electromagnetic
pulse, radar blackout, etc., as well as possible
effects about which nothing will be known so long
as the atomic test ban treaty is in force. In
this latter category are those associated with
extremely high yields.

8. Summary of Recommendations. Considering requirements
to obtain a balanced program of strategic offensive and
defensive forces, recommendations concerning major systems
examined in the foregoing analysis are summarized below:

a. Offensive Systems ^{1/}

(1) Advanced Manned Strategic Aircraft (AMSA).

Engine development, advanced avionics development,
and the AMSA project definition phase should proceed
as recommended in the Air Force PCPs to assure that
a timely decision can be made on the development
of a follow-on manned strategic aircraft.

(2) B-52. The currently approved B-52 modifica-
tion program includes three major structural
modifications (ECPs 1124, 1128 and 1185). ECPs
1124 and 1128 are estimated to extend the life of
series C through H aircraft to FY 1969-1972. ECP
1185 was approved only for G and H aircraft and
is estimated to extend their life to end FY 1975.

^{1/} See CMC views, Tab D, Appendix E.

~~TOP SECRET~~

A-65

Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

Further major modification or phasedown of the B-52 fleet should be dependent upon the actual structural life of the aircraft and the decision on development and deployment of a follow-on manned strategic aircraft.

(3) MINUTEMAN.1/ JSOP-69, this analysis and the recent studies which have addressed the Strategic Retaliatory Force requirements provide appropriate data, rationale and judgments which fully support a 1200 MINUTEMAN force. This 1200 MINUTEMAN force level is in consonance with the attainment of a balanced offensive and defensive force structure and funds should be allocated in the FY 1967 budget to ensure attainment of this level by end FY 1970.

(4) B-3 POLARIS Missile (POSEIDON). Funding should be provided in FY 1967 to support the continued development of the B-3 missile in recognition of the need for replacement missiles for the A-2 and A-3 missiles, achievement of the MIRV capability, and increased missile penetration capability to counter improvements in ballistic missile defenses which may develop.

b. Defensive Systems 2/3/

(1) NIKE-X. An effective ABM deployment is considered a critical item for attainment of a balanced strategic posture and it is particularly important that no avoidable slippage be permitted. The Joint Chiefs of Staff, less the Chief of Staff, US Air Force, support the development and deployment of NIKE-X: they defer decision on scope of deployment pending determination of a specific deployment configuration; they consider that required funding should be provided in the FY 1967 budget to insure IOC in FY 1970 and,

1/ See CSAF view, Tab C, Appendix E.
2/ See CMC views, Tab B, Appendix E.
3/ See CMC views, Tab D, Appendix E.

~~TOP SECRET~~

A-66

Section A
Part VI, JSOP-70

~~TOP SECRET~~

accordingly, force levels beyond IOC are for planning purposes. The Chief of Staff, US Air Force, believes that the required funding should be provided in the FY 1967 budget to prevent slippage of IOC; final decision for production should be subject to JCS. review of NIDS-X development and testing progress, and determination of specific deployment concept.

(2) Advanced Surface-to-Air Missile System. 1/
Funds for engineering development of SAM D should be provided in FY 1967, to permit an uninterrupted development for this advanced terminal bomber defense system.

(3) Current Manned Interceptors. 2/ It is recommended that interceptor force levels be retained essentially at the current levels until advanced intercept systems are deployed operationally; or, until the threat has decreased proportionately.

(4) Advanced Manned Interceptor. 1/ 2/ 3/ The need for an advanced interceptor is also integral to the concept of a balanced defense. It is necessary to modernize our defense forces as we attain a balanced offensive/defensive force, with a weapon system which takes full advantage of the state-of-the-art. The F-12 aircraft is recommended for this role and should provide a significant increase in our defensive capability and deterrent posture. The required funding for production should be allocated to protect the option for deployment and earliest initial operational capability (IOC).

1/ See CSAF view, Tab C, Appendix E.
2/ See CSA view, Tab A, Appendix B.
3/ See CNO view, Tab B, Appendix E.

~~TOP SECRET~~

A-67

Section A
Part VI, JSOP-70

~~TOP SECRET~~

- (5) Airborne Warning and Control System (AWACS). 1
Funds for the development of AWACS should be provided 2
in the FY 1967 budget to permit an uninterrupted 3
development for this system. 4
(6) The HAWK Improvement Program.^{1/} An improved 5
HAWK system should be developed, with funding 6
adequate to permit operational deployment without 7
delay if the development program achieves its objective. 8
c. Civil Defense. This analysis and other studies 9
indicate that a full fallout shelter program is vital 10
in a balanced posture of offense and defense and 11
should be fully supported in future budget actions for 12
completion in the early 1970 period. 13

^{1/} See CSAF view, Tab C, Appendix E.

~~TOP SECRET~~

A-68

Section A
Part VI, JSOP-70

~~TOP SECRET~~
[REDACTED]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

APPENDIX A

US STRATEGIC RETALIATORY FORCE

1. The basic US strategic retaliatory forces employed 1
against the Soviet Bloc [REDACTED] in this study 2
are tabulated in Table A-1 herein. 3
2. FY 1969 forces approximate levels recommended by the 4
Joint Chiefs of Staff. FY 1974 forces reflect submissions 5
by the proponent Service. 6
3. Operational factors used in the analysis are tabulated 7
in Table A-2. 8

~~TOP SECRET~~

A-69

Appendix A - Section A
Part VI, JSOP-70

[REDACTED]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~
[REDACTED]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

TABLE A-1

JSOP-70 BASIC US STRATEGIC RETALIATORY FORCES USED IN
FORCE INTERACTIONS

SYSTEM	END FY 1969	END FY 1974
<u>AIRCRAFT</u>		
B-52	585	360
B-58	70	60
AMSA	--	81
TOTAL	655	501
<u>AIR LAUNCHED MISSILES</u>		
HOUND DOG	483	483
<u>SURFACE-TO-SURFACE MISSILES</u>		
TITAN	54	54
MINUTEMAN I	400	--
MINUTEMAN II	800	1,200
POLARIS A-2	208	--
POLARIS A-3	448	448
POLARIS B-3	--	208
TOTAL ICBM/FBM	1,910	1,910

A-70

Appendix A - Section A
Part VI, JSOP-70

~~TOP SECRET~~

[REDACTED]
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

THIS PAGE
WAS
DENIED IN
FULL

~~TOP SECRET~~

APPENDIX B

US CONTINENTAL AIR AND MISSILE DEFENSE
FORCES AND US TARGET LIST

1. A summary of the US Continental Air and Missile Defense Forces employed in this study are tabulated in Table B-1 below. FY 1969 forces approximate Program Package II levels recommended by the Joint Chiefs of Staff. FY 1974 levels represent projections and submissions by the Service having budgeting responsibility. Program Package III ASW forces employed are not listed herein but are the same as those gamed in the CJCS SSG Alternative General Nuclear War Postures (AGNWP) study. 1
2. The US Target List is contained in Table D-2. This list is the same for FY 1969 and FY 1974 except in the number of ADM defended and undefended complexes. 2
3. The following paragraphs contain a brief discussion of the source of the operational factors or system models employed for defense of CONUS in JSOP-70. In essentially all cases, this source was the Alternative General Nuclear War Postures study. Details of operational concepts and employment, not addressed herein for brevity reasons, may be found in Appendix D of that study. Paragraphs pertaining to these systems are Tabbed as follows: 3
- A. PROGRAMMED AIR DEFENSE FORCES, FY 1969 MODEL 4
- B. NIKE-HERCULES DEFENSE SYSTEM MODEL 5
- C. ANTISUBMARINE WARFARE ATTRITION MODEL 6
- D. HIP/HAWK SYSTEM MODEL 7
- E. ADVANCED MANNED INTERCEPTOR MODEL 8
- F. NIKE-X SYSTEM MODEL 9
- G. SAM-D SYSTEM MODEL 10
- H. AIRBORNE WARNING AND CONTROL SYSTEM (AWACS) 11
- I. CIVIL DEFENSE POSTURE MODEL 12
4. Operational factors used in the analysis are tabulated in this appendix. 13

~~TOP SECRET~~

~~TOP SECRET~~

TABLE B-1

JSOP-70 BASIC US CONTINENTAL AIR AND MISSILE DEFENSE
FORCES USED IN FORCE INTERACTIONS

SYSTEM	END FY 1969	END FY 1974
<u>MANNED INTERCEPTORS</u>		
<u>Air Force</u>		
F-101	270	90
F-102	196	--
F-104	24	--
F-106	204	90
Advanced	--	144
<u>Air National Guard</u>		
F-89	200	--
F-101	--	162
F-102	336	72
F-106	--	108
TOTAL INTERCEPTORS	1,230	666
<u>SURFACE-TO-AIR MISSILES</u>		
BOMARC	188	--
NIKE-HERCULES (Reg)	1,548	396
NIKE-HERCULES (NG)	972	108
NIKE-X ^{a/}	(--)	(SPRINT 14,152)
	(--)	(ZEUS 490)
HAWK (Reg)	576	(HIP/HAWK) 450
HIP/HAWK (ARNG)	--	3,240
SAM D ^{a/}	--	2,176
<u>SOSUS ARRAYS</u>	35	52

a/ Forty-seven complexes defended by mid-FY 1974

Appendix D - Section A
 Part VI, JSOP-70

~~TOP SECRET~~

A-73

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

TABLE B-2
US TARGET LIST

CATEGORY	VN	NUMBER
Bomber Home Airfields		43
Dispersal Airfields		58
ICBM Sites:		
TITAN II		54
MINUTEMAN		1200
Submarine/Naval Bases		10
Offensive Controls		6
VLF Radio Facilities		2
Defense Suppression:		
Air Defense		80
SOSUS		19
ASW Airfields (4 CONUS)		10
Space System Facilities		8
Nuclear Storage		20
Nuclear Production		10
Total Military		1518
Hard Alternate Govt/Mil Controls		5
Urban/Industrial Complexes:		
ABM Defended	<u>FY1969</u> 0	<u>FY1974</u> 47
Undefended	226	179

~~TOP SECRET~~

A-74

Appendix B, Section A
Part VI, JSwF-70

~~TOP SECRET~~

~~TOP SECRET~~


TAB A TO APPENDIX B

PROGRAMMED AIR DEFENSE FORCES, FY 1969 MODEL

1. The air defense forces programmed for FY 1969 employed
in JSOP-70 force interactions were gamed in the same manner
as in the AGNWP. Attrition factors were adjusted with
assistance of CONAD representatives and were based upon
the following parameters:

a. 

b. BMEWS warning available (15 minutes).

c. Soviet bomber attack is spread over three - four
hours in 

d. Attrition in NW US is based on at least 80 percent
of the Soviet bomber force employed against hard missile
sites or targets short of Ellsworth Air Force Base.

e. Air defense suppression attacks were given a
90 percent probability of target destruction.

f. Heavy bomber combat attrition is generally lower
than medium bombers due to longer low altitude profile.

g. Combat attrition against bombers attacking hard
missiles in NW US is low due to limited time bomber force
remains in air defense contiguous cover.

h. Combat attrition on "other" targets is higher due
to larger air defense forces and smaller bomber force
considered.

~~TOP SECRET~~

A-75

Tab A
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

1. An ECM degradation factor of 25 percent was considered.

j. Factors are based on extensive wargames of programmed forces conducted by NORAD and represent average situations.

k. Suppression factors are based on 20-35 targets in NW US and 50 targets in other areas as listed by type.

1. Terminal defenses have not been considered in this model.

2. The chart below depicts attrition factors in Soviet initiation which were based on Soviet suppression of US air defenses. In Soviet retaliation to [REDACTED] the factors reflect the inability of the USSR to conduct any defense suppression with her limited surviving forces; additionally, the US defense forces are fully generated in [REDACTED]

DEFENSE ATTRITION OF SOVIET BOMBERS

<u>WAR CONDITION</u>	<u>TARGETS IN NORTHWEST US</u>	<u>TARGETS ELSEWHERE</u>
Soviet Initiation		
Medium	.10	.25
Heavy	.10	.20
[REDACTED]		
Medium	.43	.85
Heavy	.35	.75

~~TOP SECRET~~

A-76

Tab A .
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

TAB B TO APPENDIX B

NIKE-HERCULES DEFENSE SYSTEM MODEL

1. The NIKE-HERCULES is the only terminal air defense system deployed in the earlier period (1969) of JSOP-70. By FY 1969, it is deployed at 24 of the 47 major metropolitan complexes listed in the 1974 force model, plus two intermediate-size complexes for which HAWK is proposed in 1974. 1 2 3 4 5 6
2. For the purposes of this analysis, the system is credited by FY 1969 with improvements that will provide some capability against low altitude (approximately 1000 feet) bombers and submarine-launched cruise missiles. 7 8 9 10
3. Operational factors employed are as follows: 11

<u>TYPE TARGET</u>	<u>PROBABILITY OF DETECTION AND ACQUISITION</u>	<u>ALLOWED INTERCEPTS PER BATTERY</u>
Bombers	.90	3-4
Bombers (low altitude)	.50	1
SSN-3	.50	1
AS-3	.90	4
AS-4	.90	1
On-launch reliability -	.95	
In-flight reliability -	.86	
Terminal kill probability -	.99	

~~TOP SECRET~~

A-77

Tab. B
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~


~~TOP SECRET~~

TAB C TO APPENDIX B

ANTISUBMARINE WARFARE ATTRITION MODEL

1. Naval ASW forces employed in JSOP-70 were the same 1
as those FY 1969 forces provided by the Navy for CONUS 2
defense in the AGNWP study. Eighty-five percent of the 3
Soviet missile launching submarines were assumed to be at 4
sea, of which eight ballistic missile nuclear submarines 5
were considered to be "on-station" in international waters 6
off the US coasts. These "on-station" submarines were 7
committed to the attack of SAC bomber bases, and all other 8
threat and war gaming assumptions used in the AGNWP ASW 9
interactions were employed for JSOP-70. Improvements in 10
Soviet submarine operation between 1969 and 1974 were assumed 11
countered by increased US capability in ASW warfare. 12

2. Based on the above, ASW attrition factors employed 13
against the 1969 and 1974 Soviet submarine threat were: 14

<u>WAR CONDITION</u>	<u>ON-STATION SUBMARINES</u>	<u>FOLLOW-ON SUBMARINES</u>	
Soviet Initiation	.13	.25	15
	.72	.75	16

~~TOP SECRET~~

A-78

Tab C
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

TAB D TO APPENDIX B

HIP/HAWK SYSTEM MODEL

1. The HIP/HAWK air defense system was not exercised in 1
AGNWP nor in the early (1969) time frame of JSOP-70. For 2
FY 1974, the Army proposes to redeploy the HIP/HAWK forces, 3
now overseas, in defense of CONUS as they are replaced with 4
SAM-D. For FY 1974 force interactions, the proposed CONUS 5
deployment of HIP/HAWK encompasses 179 intermediate-size 6
complexes containing 15.7 percent of the total national 7
population. 8
2. Operational factors employed in action against bombers, 9
submarine-launched cruise missiles, and air-to-surface 10
missiles are tabulated below: 11

Detection probability (urban defense)	-.95
Reliability	
On-launch	-.95
In-flight (includes terminal kill probability)	-.85
Assumes up to three missiles launched per target per fire unit.	

~~TOP SECRET~~

A-79

Appendix B, Section A
Part VI, JSOP, 70

~~TOP SECRET~~

~~TOP SECRET~~

TAB E TO APPENDIX B

ADVANCED MANNED INTERCEPTOR MODEL

1. For purposes of evaluating area bomber defense capabilities in the 1974 period, the USAF advised that the factors and kill probabilities used in the AGNWP for the F-12 (IMI) were appropriate for use in JSOP-70. This AGNWP model was identical with that used in the USAF Continental Air Defense Study (CADS) 1963. 1
2. Employing the AGNWP study operational concept, factors, and tables, the proposed F-12 force of 144 inventory aircraft destroys about 98 percent of the bomber threat in a Soviet initiated attack, while damage expectancy on US air defense facilities was 84 percent. Up to three sorties per alert aircraft were assumed possible for those aircraft not aborting. ~~TOP SECRET~~ or in other cases of no defense suppression, this force destroys essentially all of the bomber threat. 2
3. This model does not include consideration of the Century series aircraft. It is assumed that these aircraft would be deployed in such a manner as to provide concentration or to fill gaps in the air defense. 3

~~TOP SECRET~~

A-80

Tab E
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

TAB F TO APPENDIX B

NIKE-X SYSTEM MODEL

1. The JSOP-70 NIKE-X deployment provided by the Army
(with some adjustments in the SPRINT inventory) defends 47
complexes, deploying 17 Multi-function Array Radars (MAR),
160 Missile Site Radars (MSR), 14,152 SPRINT and 490 ZEUS
Interceptors. These complexes are listed, following para-
graph 3. 1
2
3
4
5
6
2. The NIKE-X performance data are classified BRIEF ECHO
and are contained in Volume III of the AGNWP study. 7
8
3. Methodology for attack of NIKE-X defended cities is
the same as that described in Appendix D of AGNWP. 9
10

47 COMPLEX NIKE-X DEPLOYMENT

<u>COMPLEX</u>	<u>NO. DGZ^a</u>	<u>NO. MAR</u>	<u>NO. MSR</u>	<u>MISSILE INVENTORY</u>	
				<u>ZEUS</u>	<u>SPRINT</u>
New York	17	2	18	100	2,400
Chicago	11	1	8	50	1,250
Los Angeles	8	1	11	60	940
Phila/Camden	6	1	5	40	675
Detroit	10	1	4	40	750
San Francisco	5	1	6	40	344
Boston	8	1	4	20	380
St. Louis	4	1	2	20	356
Washington, D. C.	6	1	2	20	160
Pittsburgh	6	1	2	20	388
Cleveland	6	1	2	20	380
Baltimore	1	1	2	20	283

~~TOP SECRET~~

A-81

Tab F
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

47 COMPLEX NIKE-X DEPLOYMENT (Cont'd)

COMPLEX	NO. DGZ ² /	NO. MAR	NO. MSR	MISSILE INVENTORY	
				ZEUS	SPRINT
Minn./St. Paul	5	1	2	10	189
Milwaukee	3	1	1	10	230
Buffalo/Niagara	3	1	1	10	248
Cincinnati	4	1	2	10	219
Dallas	5	0	3	0	160
Kansas City	4	0	2	0	160
Seattle	3	0	3	0	160
Houston	5	0	3	0	160
Atlanta	2	0	3	0	160
San Diego	3	0	3	0	160
Miami	3	0	3	0	160
Providence	2	0	3	0	160
Norfolk/Newport News/ Portsmouth	3	0	3	0	160
Dayton	1	0	3	0	160
Ft. Worth	2	0	3	0	160
New Orleans	2	0	3	0	160
Denver	2	0	2	0	160
San Jose	3	0	3	0	160
Portland	1	0	3	0	160
Indianapolis	3	0	3	0	160
Tampa/St. Pete	2	0	3	0	160
Columbus	3	0	3	0	160
Louisville	1	0	3	0	160
Memphis	3	0	2	0	160
Springfield, Mass.	2	0	3	0	160
Birmingham	1	0	3	0	160
Rochester	1	0	3	0	160
Albany	3	0	3	0	160

~~TOP SECRET~~

A-82

Tab F
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

47 COMPLEX NIKE-X DEPLOYMENT (Cont'd)

COMPLEX	NO. DGZ ^{a/}	NO. MAR	NO. MSR	MISSILE INVENTORY	
				ZEUS	SPRINT
Youngstown	1	0	3	0	160
Toledo	1	0	3	0	160
Sacramento	2	0	3	0	160
Akron	1	0	3	0	160
Syracuse	1	0	3	0	160
Grand Rapids	1	0	2	0	160
Peoria	1	0	2	0	160

a/ DGZs indicated contain 100,000 or more people

~~TOP SECRET~~

A-83

Tab F
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

SAM D SYSTEM MODEL

- | | |
|---|----|
| 1. The SAM D terminal defense system is deployed with | 1 |
| and complements a ballistic missile defense system at 47 | 2 |
| complexes for JSOP-70. It replaces NIKE-HERCULES in 24 of | 3 |
| the 47 ABM defended complexes. | 4 |
| 2. Operational factors employed are as follows: | 5 |
| Detection probability - .92 | 6 |
| Ready rate - .96 | 7 |
| Reliability | 8 |
| On-launch - .99 | 9 |
| In-flight - .93 | 10 |
| Terminal kill - .999 against air supported tgts | 11 |
| .95 against ballistic re-entry vehicles and AS-4 | 12 |
| Reprogrammable | 13 |

~~TOP SECRET~~

Tab G
Appendix B - Section A
Part VI, JSOP-70

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

TAB H TO APPENDIX B

AIRBORNE WARNING AND CONTROL MODEL (AWACS)

1. The AWACS used in the CADS and ANGWP studies was considered in this analysis. This system was assumed to provide survivable, self-contained radar surveillance, battle management and weapons control. 1
2
3
4
2. The F-12 was considered less dependent upon an effective control system than current interceptors. However, under conditions of heavy defense suppression by the enemy, the AWACS permitted optimum deployment of the interceptor force through its capability to substitute for ground-based radar. 5
6
7
8
9
10
3. The AWACS aircraft were "flushed" on BMEWS warning, and provided warning and control of the bomber defenses. 11
12

~~TOP SECRET~~

A-85

Tab H
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

TAB I TO APPENDIX B

CIVIL DEFENSE POSTURE MODEL

1. Three US Civil Defense Postures were considered in 1
JSOP-70. These provide increasing levels of fallout pro- 2
tection and were derived from the Civil Defense Study Pro- 3
ject IV A, Annex A. Blast shelter protection was not 4
considered for JSOP-70. 5

2. Shelter programs are based upon radiation protection 6
factors and cumulative radiation dosage over a 10-month 7
period. The protection factor is the factor by which the 8
fallout radiation intensity at the surface is attenuated 9
or reduced in the process of penetrating to a specified 10
personnel shelter; e.g., an ordinary house basement provides 11
a protection factor of ten and a person in a basement would 12
receive one tenth of the radiation dosage he would absorb 13
in the open. 14

3. Shelter Posture 1 reflects no special shelter program 15
and an unprepared population which obtains shelter by use 16
of basements, buildings without basements, and any other 17
available cover. 18

4. Shelter Posture 2 provides for 90 million fallout 19
shelter spaces marked and stocked for two weeks occupancy. 20
Eighty-two million persons are sheltered, reflecting assump- 21
tions of shelter use, and variations in protection factor. 22

5. Shelter Posture 3 considers a complete fallout shelter 23
program of 240 million marked and stocked spaces for two 24
weeks occupancy, which would provide shelter for the pro- 25
jected 1971 population of 210 million people. Ten percent 26

~~TOP SECRET~~

A-86

Tab I
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

of the people are assumed to occupy shelters as in Posture 1 above. The remaining 90 percent would occupy shelters as shown for Posture 3 in the figure that follows.

6. For an unprepared population as in Posture 1; i.e., no special shelter program existing, persons were assumed to stay in dwellings continuously for three days followed by normal exposure. For a prepared population, the stay in home basements was extended up to two weeks. Marked but not stocked, shelters were occupied continuously for three days followed by controlled exposure living through the second week following attack. Persons in stocked shelters were assumed to stay in them continuously for 14 days followed by controlled exposure living for 46 days and normal living thereafter. In Posture 3, where the total number of shelter spaces available exceeded the total population, it was assumed that 10 percent of the population would not avail themselves of shelter.

CIVIL DEFENSE POSTURES
DISTRIBUTION (PERCENT) OF POPULATION BY TYPE OF SHELTER

<u>POSTURE</u>	<u>FALLOUT PROTECTION FACTORS</u>				<u>COST</u>
	<u>2</u>	<u>10</u>	<u>40-90</u>	<u>100+</u>	
1. No Special Shelter Program (Posture 1)	48	47	2	3	
2. 90 M Spaces (Posture 2)	34	27	14	25	107.5 M
3. 240 M Spaces (Posture 3)	5	5	32	58	5.2 B

~~TOP SECRET~~

A-87

Tab I
Appendix B - Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~SECRET~~

APPENDIX C

SOVIET BLOC STRATEGIC OFFENSIVE FORCES
AND TARGET LISTS

1. Table C-1 below lists the Soviet Strategic Offensive Forces (Median) used in JSOP-70 in comparison with those employed in the AGNWP study. 1
2
3
2. Soviet SS-7 and SS-9 multiple warhead/decoy configurations used for attack of the United States ABM system are described in Table C-2. These were provided by the Director, Defense Research and Engineering. 4
5
6
7
3. Operational factors for Soviet missile systems are tabulated in Table C-2. This table also includes a description of the Soviet ABM Model. Soviet Strategic Bomber inventory, loading, and operational factors are contained in Table C-3. 8
9
10
11
12
4. The above Soviet force estimates and operational factors were derived from information provided in the current Joint Intelligence Estimate for Planning. The bomber threat against the United States has been maximized. Additionally, one-half of the Soviet submarine cruise missile force was programmed against US urban targets. Defense Intelligence Agency provided the Soviet ABM Model. 13
14
15
16
17
18
19
5. The Soviet [REDACTED] Target Lists are compared with those used in AGNWP and tabulated in Tables C-4 and C-5. 20
21
22

~~TOP SECRET~~

A-88

Appendix C, Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

TABLE C-1

SOVIET STRATEGIC OFFENSIVE FORCES 1/
JIEP

<u>DELIVERY VEHICLE</u>	<u>1969</u>	<u>1974</u>	<u>AGNWP (1971)</u>
<u>ICBM Launchers</u>			
SS-7/8	136	136	124
SS-7/8	48	48	114
SS-9	--	--	76
SS-9/10	193	193	99
SS-Large	15	15	38
SS-Small	107	163	75
TOTAL	499	555	526
<u>Tyuratam Launchers</u>			
Tyuratam Launchers	35	35	30
<u>IR/MRBM Launchers</u>			
SS 4/5	616	616	480
SS 4/5	144	144	261
TOTAL	760	760	741
<u>Submarines/Missiles</u>			
SSBN	55/203	56/253	
SSN3	24/140	25/148	
TOTAL (Against COMUS)	79/343	81/401	96/439
<u>Bombers^{a/}</u>			
BEAR	90	47	63
BISON	80 (43)	55 (42)	70 (47)
BLINDER	250	250	275
BADGER	256 (128)	(115)	50 (50)
TOTAL	676	467	458

1/ See Air Force view, TAB C, APPENDIX E.

a/ Includes aerial refuelers as shown in parentheses.

~~TOP SECRET~~

A-89

Appendix C, Section A
Part VI, JSOP-70

~~SECRET~~
AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

TOP SECRET

TABLE C-2

SOVIET MISSILE SYSTEMS AND OPERATIONAL FACTORS (JSOP-70)

System	Force Alert or at Sea	OL REL	Reprogram Ratio a/	Inflt REL
SS 7/8	.80	.85	$\frac{1}{ARxOL}$.90
SS 9/10	.80	.85	$\frac{1}{ARxOL}$.90
SS Small	.90	.90 $\frac{1}{2}$	$\frac{1}{ARxOL}$.85 $\frac{1}{2}$
SS Large	.85	.85 $\frac{1}{2}$	$\frac{1}{AR}$.85 $\frac{1}{2}$
SSN-3	.85	.80	$\frac{a}{a}$.85
SSN-4	.85	.80	$\frac{a}{a}$.80
SSN-5	.85	.80	$\frac{a}{a}$.80
AS-3	--	.80	--	.70
AS-4	--	.80	--	.70

SOVIET ABM MODEL 4 cities in FY 1970

18 cities in FY 1974

1. Deployment

90 launchers at Moscow and Leningrad

60 launchers at all other defended cities

2. Inventory

Four per launcher at any one time

3. Discrimination Capability

0.65 warheads from decoys

4. Reliability

Ready rate - .9

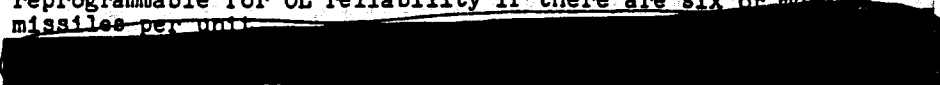
On-launch - .9

In-flight - .8

5. SSKP - 0.55

6. Reprogramming Capability - none. (Assumed two interceptors employed against each arriving warhead.)

a/ Sub-launched ballistic missiles at sea will be assumed reprogrammable for OL reliability if there are six or more missiles per unit

b/ 
c/ Postulated by DIA.

~~TOP SECRET~~

A-90

Appendix C, Section A
Part VI, JSOP-70

~~FORMERLY~~
~~RESTRICTED DATA~~

AS DEFINED BY ATOMIC ENERGY ACT OF 1954

~~TOP SECRET~~

~~TOP SECRET~~

TABLE C-3
SOVIET STRATEGIC BOMBER INVENTORY AND OPERATIONAL FACTORS

Aircraft	Ref	Staging*	Mission	1969 Med	H1	1974 Med	Range N.M.	Ready Rate	A/C Rel
BEAR A	No	No	1 or 2-way	17	20	None	8800	.90	.90
BEAR B	No	No	1-way	30	35	5	7250	.90	.90
BEAR C	Yes	No	2-way	20	20	32	5200	.90	.85
BISON (BOMBER)	No	No	1-way	37	45	13	5700	.90	.90
BISON (TANKER)	No	No	--	43	45	42	--	-	-
BAUDER (BOMBER)	Yes	Yes	1-way	128	150	None	4500	.90	.77
BAUDER (TANKER)	Yes	Yes	--	128	150	115	--	.90	.81
BLINDER A	No	Yes	1-way	135	150	135	3625a/	.90	.81
BLINDER B	No	Yes	1-way	115	150	115	2875b/	.90	.81

~~NOTE~~
Staging capacities as per Table 34, (winter months)

a/ Subsonic mission. With 200 nm supercruise dash, range is 3600 nm.
b/ Includes Sub-Sonic Profile, Plus 275, nm AS-4 Range

(3) 9
306

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

~~TOP SECRET~~

APPENDIX D

WEAPON APPLICATION SUMMARIES

1. Tables D-1 through D-5 depict the allocation and
application of ready weapons in selected force interactions,
with associated damage expectancies. Damage expectancies
have been calculated on the basis of achieving severe damage
to the target system. Missile damage expectancy is that
expectancy of severe damage achieved by only the ICBM/
SLBM attack; total damage expectancy is that resulting from
application of both missile and bomber-delivered weapons.
Weapons assignment is expressed in terms of ready weapons
programmed - not inventory weapons. The non-alert portion
of the force, which is significant, may be depended upon to
penetrate to programmed target areas. The following tables
include, as appropriate, the numbers of non-alert vehicles
which survive attacks and which could be programmed against
non-time-sensitive targets.

2. The Soviet military attack has been held constant
in all variations of FY 1974 Soviet Initiation except that
TITAN II is not attacked in cases involving a US ABM in
the defensive force mix. As described in paragraph 5, the
actual application of Soviet weapons to urban complexes
has been varied to optimize the attack against each US
FY 1974 defensive mix in order to maximize damage and
fatalities.

Appendix D, Section A
Part VI, JSOP-70

~~TOP SECRET~~

A-94

~~TOP SECRET~~

TOP SECRET

3. It is recognized that the results of this analysis,
as well as others considered, are sensitive to the target-
ing concepts assumed. Changes in employment concepts could
cause variations in the relative utility of the systems
examined; however, the generalization that a proper mix
of damage limiting is required would remain valid despite
these changes. The weapons application summaries which
follow represent illustrative examples for the particular
situations examined in this analysis.

1
2
3
4
5
6
7
8
9
10

TOP SECRET

A-95

Appendix D, Section A
Part VI, JSOP-70

~~TOP SECRET~~

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

THIS PAGE
WAS
DENIED IN
FULL

~~TOP SECRET~~

APPENDIX E

PART VI, JSOP-70

FYFS & FP TABLES

TABLE 4 - STRATEGIC RETALIATORY FORCES

TABLE 5 - CONTINENTAL AIR & MISSILE DEFENSE FORCES

TAB A - Views of the Chief of Staff, Army

TAB B - Views of the Chief of Naval Operations

TAB C - Views of the Chief of Staff, Air Force

TAB D - Views of the Commandant of the Marine Corps

The Force Tables which follow contain force levels approved by the Secretary of Defense in the Department of Defense Five Year Force Structure and Financial Program (FYFS&FP) and those recommended by the Joint Chiefs of Staff through FY 1974.

~~TOP SECRET~~

~~TOP SECRET~~

APPENDIX E, SECTION A, PART VI, JSOP-70

FORCE TABS

TABLE 4 - STRATEGIC RETALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
<u>BOMBERS</u>										
B-52										
Appd	630	600	600	600	600	600				
JCS	630	600	600	600	600a	600	600	600	585	495
<hr/>										
B-5B-47										
Appd	225	0								
JCS	225	0								
<hr/>										
B-58										
Appd	80	80	78	76	74	72				
JCS	80	80	78	76	74	72	70	68	66	64
<hr/>										
AMSA*										
Appd										
JCS								0	8b/	39
<hr/>										
<u>AIR LAUNCHED MISSILES</u>										
HOUND DOG										
Appd	560	540	540	540	520	520				
JCS	560	540	540	540	520	520	520	520	520c	520
<hr/>										
<u>SURFACE-TO-SURFACE MISSILES</u>										
TITAN										
Appd	54	54	54	54	54	54				
JCS	54	54	54	54	54	54	54	54	54d	54

* Recommended new line item.

~~TOP SECRET~~

A-101

Table 4
Appendix E to
Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

TABLE 4 - STRATEGIC RETALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
MINUTEMAN I										
Appd	800	800	700	550	400	250				
JCS	800	800	700	550	400	250	100	0		

MINUTEMAN II										
Appd	0	80	300	450	600	750				
JCS	0	80	300	450	700	950	1100	1200	1200	1200

POLARIS										
Appd	464	512	656	656	656	656				
JCS	464	512	656	656	656	656	656	656	656	656

QUAIL										
Appd	392	390	390	390	390	390				
JCS	392	390	390	390	390	390	390	390	390	390

KC-135										
Appd	620	620	620	620	620	620				
JCS	620	620	620	620	620	620	620	620	620	620

KC-97										
Appd	120	0								
JCS	120	0								

~~TOP SECRET~~

A 102

Table 4
Appendix E to Section A
Part VI, JSOP 70

~~TOP SECRET~~

TABLE 4 - STRATEGIC RETALIATORY FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
RB-47										
Appd	30	17	3	3	3	3				
JCS	30	17	3	3	3	3	3	3	3	3
RC-135										
Appd	0	0	10	10	10	10				
JCS	0	0	10	10	10	10	10	10	10	10
SR-71										
Appd	2	14	25	25	25	25				
JCS	2	14	25	25 ⁿ 34	25 34	25 34	34	34	34	34
PACCS										
KC-135										
Appd	24	24	24	24	24	24				
JCS	24	24	24	24	24	24	24	24	24	24

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

FOOTNOTES - TABLE 4, APPENDIX E

- a/ The extent of phase-down in this and succeeding years is contingent on structural life of the B-52, the missile force level and effectiveness, and phase-in of a new manned strategic aircraft. Favorable decision on the 1200 MINUTEMAN force level and/or the introduction of a new manned strategic aircraft will be reflected in reduced numbers of B-52s which the JCS will recommend for retention in the force structure. Forces shown are for planning purposes in related systems.
- b/ Recommend approval of PDP; recommendation regarding the decision for full-scale weapons system development deferred pending review of PDP and other manned bomber alternatives. Forces depicted are for planning purposes in related systems.
- c/ The extent of the phase-down for this and succeeding years contingent on the B-52 force levels.
- d/ Based upon the estimated shelf life of MINUTEMAN II, replacement missiles will be required beginning in 1973. Force levels of MINUTEMAN II and TITAN may be reduced; dependent upon introduction of a MINUTEMAN III anticipated by the CSAF in 1973.
- e/ POSEIDON anticipated to become available in 1971-1972 period.
- f/ The force levels for these forces have not been addressed by the JCS due to the political uncertainties involved. When the political issues have been resolved, the JCS will address the relationship of these forces to the total force requirement.
- g/ Phase-down can be determined only after full consideration of over-all air refueling requirements for manned aircraft.
- h/ An increase in force levels above 34 may be required when more definitive information is available concerning requirements, capabilities, and reconnaissance developments in other systems. These data will be provided separately.

~~TOP SECRET~~

A-104

Table 4
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

APPENDIX E, SECTION A, PART VI, JSOP-70

FORCE TABS

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
<u>AIR DEFENSE</u>										
<u>Manned Interceptor-Air Force</u>										
<u>F-101</u>										
Appd	262	276	276	204	114	108				
CSA	270	270	264	204	114	108	a/			
CNO, CSAF, CMC	270	270	264	258	252	240	216a/	180	126	126
<u>F-102</u>										
Appd	235	111	0							
JCS	235	111	0							
<u>F-104</u>										
Appd	36	36	36	24	24	24				
JCS	36	36	60b/	60	50	42	42	24a/	0	
<u>F-106</u>										
Appd	234	228	216	210	204	198				
JCS	234	228	216	210	198	198	180a/	180	126	126
<u>F-12*</u>										
Appd	0	0	0	0	0	0				
CSA, CNO, CMC						c/				
CSAF						180c/	54	108	162	216
<u>Air National Guard</u>										
<u>F-59</u>										
Appd	225	125	0							
JCS	225	125	0							

* Recommended new line item

~~TOP SECRET~~

A-105

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
F-102										
Appd	234	306	396	396	396	396				
JCS	234	324	396	396	396	396	360 ^a /	324	252	252
<hr/>										
<u>SAM MISSILE FORCES</u>										
(Btys/MsIs)										
BOMARC										
Appd	180	174	168	162	156	150				
JCS	180	174	168	162	156	150				
<hr/>										
NIKE HERCULES										
Appd	1548	1548	1548	1548	1504	1397				
	86	86	86	86	86	86	78 ^e /	60	18	0
JCS	1548	1548	1548	1548	1504	1397	1285	1080	324	0
<hr/>										
HAWK (Reg)										
Appd	576	576	576	576	576	560				
	8	8	8	8	8	8	8	8	8	8
JCS	576	576	576	576	576	576	576	576	576	576
<hr/>										
NIKE HERCULES (ARNG)										
Appd	936	936	936	936	909	832				
	54	54	54	54	54	54	54	35 ^e /	12	6
JCS	936	936	936	936	909	909	760	630	216	72
<hr/>										
NIKE X*										
Appd										
CSA, CMC							0	244 ^f /	2256	5403
CNO							0	244 ^f /	7192	3560
CSAF							0	f/		

* Recommended new line item

~~TOP SECRET~~

A-106

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Defense Complex (NIKE X)*										
Appd										
CSA, CMC					0	1f/	8	17	29	36
CNO						1f/				
CSAF					0	f/				
SAM D*										
Appd								22	34	51
JCS						0	g/	1056	1632	2448
HAWK (ARNG)*										
Appd						0				
JCS						0	h/	6	42	82
								216	1512	2952
<u>CONTROL & SURVEILLANCE SYSTEMS</u>										
<u>CONTROL SYSTEMS</u>										
Combat Centers										
Appd	7	5	5	5	5	5				
JCS	6	4	4	4	4	4	4	4	4	4
Direction Centers										
Appd	15	13	13	11	11	11				
JCS	15	13	13	11	11	11	11	11	11	11
BUC Centers										
Appd	0	14	14	15	19	19				
JCS	0	14	15	15	20	20	20	20	20	20
SAM Fire Coordination Centers										
Appd	24	24	28	28	28	28				
JCS	24	24	28	28	28	28	28	28	28	28

* Recommended new line item

~~TOP SECRET~~

A-107

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Surveillance and Warning Systems										
Search Radars										
Appd	162	158	152	152	152	152				
JCS	162	158	152	152	152	152	152	152	152	152
Search Radar (ANG)										
Appd	6	6	6	6	6	6				
JCS	2	2	2	2	2	2	2	2	2	2
Height Radars										
Appd	278	270	258	258	258	258				
JCS	278	270	258	258	258	258	258	258	258	258
Gap Filler Radars										
Appd	92	92	92	92	92	92				
JCS	92	92	92	92	92	92	92	92	92	92
DEW Radar Stations										
Appd	39	39	39	39	39	39				
JCS	39	39	39	39	39	39	39	39	39	39
DEW Extension Systems (Aircraft)										
Appd	20	0								
JCS	20	0								
Offshore Radars										
AEW/ALRI Aircraft										
Appd	67	67	67	67	67	67				
JCS	65	65	65	65	65	321/ 15	0			

~~TOP SECRET~~

A-108

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Ships										
Appd	19	0								
JCS	19	0								
<hr/>										
AWAC*										
Appd						0	0			
CSA, CNO, CMC						1				
CSAF						0	10	31	42 1/2	42 42
<hr/>										
<u>MISSILE & SPACE DEFENSE</u>										
<u>ANTI-SATELLITE SYSTEMS</u>										
Program 437										
Appd	4	4	4	4	4	4				
JCS	4	4	4	4	4	4	4	4	4	4
<hr/>										
Program 505										
Appd	4	4	4	4	4	4				
JCS	4	4	4	4	4	4	4	4	4	4
<hr/>										
<u>Surveillance & Warning Systems</u>										
BMEWS Sites										
(474L)										
Appd	3	3	3	3	3	3				
JCS	3	3	3	3	3	3	3	3	3	3
<hr/>										
SLBM Radar Sites										
(SAGE)										
Appd										
JCSk/										
<hr/>										
SPASUR Transmitter/Receiver										
Appd	3/6	4/7	4/7	4/7	4/7	4/7				
JCS	3/6	4/7	4/7	4/7	4/7	4/7	4/7	4/7	4/7	4/7

* Recommended new line item

~~TOP SECRET~~

A-109

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~~~TOP SECRET~~

TABLE 5 - CONTINENTAL AIR AND MISSILE DEFENSE FORCES
(End of Fiscal Year)

	65	66	67	68	69	70	71	72	73	74
Space Track Radars										
Appd	5	5	5	5	5	5				
CSA, CNO, CMC	4	4	5	5	5	5 ¹ / ₁				
CSAF	4	4	5	5	5	7 ¹ / ₁	7	7	7	7
<hr/>										
SOUND SURVEILLANCE SYSTEM (SOSUS)										
ATL Caesar Arrays										
Appd	20	23	26	27	27	27				
CSA, CNO, CMC	20	23	26	27	27	31 ^m / _m	31	31	31	31
CSAF	20	23	26	27	27	27 ^m / _m				
<hr/>										
PAC Caesar Arrays										
Appd	7	7	8	8	8	8				
CSA, CNO, CMC	7	7	8	8	8	11 ^m / _m	15	18	21	21
CSAF	7	7	8	8	8	8 ^m / _m				
<hr/>										
COLOSSUS I										
Appd	1	2	3	3	3	3				
JCS	0	1	2	3	3	3	3	3	3	3

~~TOP SECRET~~

A-110

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

FOOTNOTES - TABLE 5, APPENDIX E

- a/ The JCS, less CSAF, consider that a phase-down is dependent on the phase-in of a follow-on manned interceptor, the type and number of follow-on manned interceptors deployed and the determination of the optimum mix of SAMs and manned interceptors. CSAF considers that the phase-down for FY 1971 and succeeding years is for planning purposes and was computed by the Air Force on the basis of phase-in of 216 F-12s.
- b/ Force increase pending availability of F-104 C&D aircraft from Program III.
- c/ The JCS support the requirement for a follow-on manned interceptor. CSAF recommends the F-12 as the appropriate aircraft for deployment. CSA, CNO and CMC consider that an option for the F-12 should be retained but, based on the estimated threat, the decision for production and deployment of either the F-12 or F-111 can be deferred. (See views Tabs A, B and D).
- d/ The JCS consider that the phase-down is dependent on phase-in of a follow-on manned interceptor.
- e/ The JCS consider that a phase-down is dependent on the phase-in of improved SAMs and the determination of the optimum mix of SAMs and manned interceptors.
- f/ The JCS, less CSAF, support the development and deployment of NIKE-X; they defer decision on scope of deployment pending determination of a specific deployment configuration; they consider that required funding should be provided in the FY 1967 budget to insure IOC in FY 1970 and, accordingly, force levels beyond IOC are for planning purposes. CSAF believes that the required funding should be provided in FY 1967 budget to prevent slippage of IOC; final decision for production should be subject to JCS review of NIKE X development and testing progress, and determination of specific deployment concept.
- g/ Funds should be provided in the FY 1967 budget to permit an uninterrupted development cycle for the SAM D system; decisions regarding full scale weapon system development, production and deployment of SAM D should be subject to JCS review upon completion of advanced development and studies currently underway. Forces shown are for planning purposes in related systems.
- h/ Scope of deployment for this and succeeding years will depend on the development, production, and deployment of improved SAMs. Source of HAWK (ARNG) from Program III dependent on phase-in of SAM D to field army.
- i/ The JCS consider that a phase-down in this system is contingent on the phase-in of new surveillance, warning and control systems.
- j/ JCS recommend continued development. CSAF believes this force level will be required to provide adequate radar surveillance and control coverage of the Continental US regardless of the force level or type of interceptors deployed during this time period. CSA, CNO, and CMC defer decision on deployment pending program evaluation.

~~TOP SECRET~~

A-111

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

FOOTNOTES

- 2/ JCS comments will be provided upon review of program.
- 1/ JCS comments will be provided upon review of program. CSAF believes this level contingent upon current development programs on radar positioning and identification of space objects with interferometer radars.
- 3/ Reflects Phase II SOSUS; however, CSAF reserves judgment on increases in the SOSUS system pending review of a program to assure effectiveness and survivability of the system.

~~TOP SECRET~~

A-112

Table 5
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

TAB A

APPENDIX E

SECTION A , PART VI, JSOP-70

VIEWS OF THE CHIEF OF STAFF, US ARMY

1. General. I fully endorse and desire to emphasize my support of the early attainment of a balanced damage-limiting capability. If the Soviets were to initiate an all-out attack on this country now or in 1970, however irrational that might be and however disastrous for themselves in turn, our armed forces with currently programmed systems could not assure the survival of the nation. A balanced program to rectify this situation must include powerful and effective offensive forces, improved area and terminal bomber defenses, improved ASW forces, an expanded civil defense effort and, particularly, the achievement of a defense against ballistic missiles. Since the analysis in Section A, Part VI of JSOP-70 supports such a program, the Army is basically in agreement with it. My divergent views on certain aspects of the paper, however, are expressed hereafter, as well as my over-all views on specific systems.

2. Offensive Forces

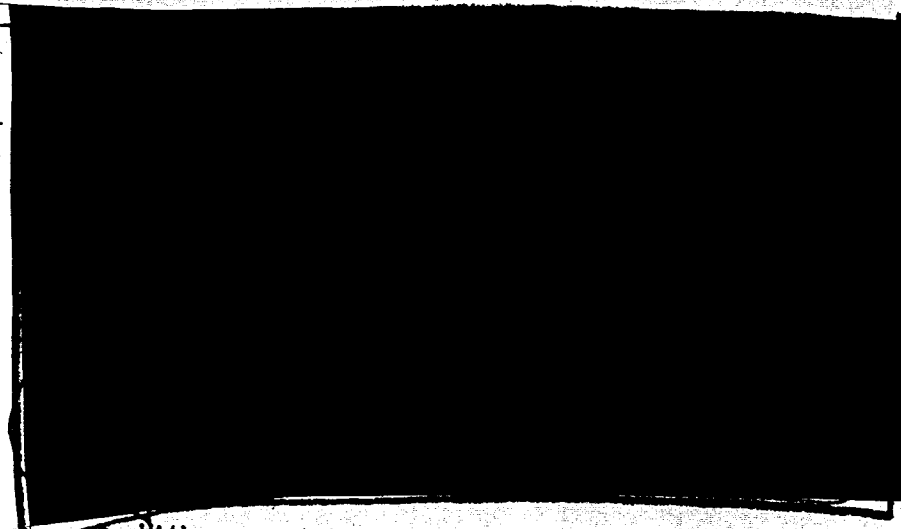
* Page A-15, Table C-5; and Tables D-2, D-4 and D-5 on pages A-97, A-99 and A-100 respectively: Page A-93,

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~



6. With respect to the bomber force as a whole, the Army opinion is that the requirement for bombers decreases as the missile force builds up to full strength.

(1) While there remains a requirement for the foreseeable future for a mix of missiles and manned bombers, that mix should become more heavily weighted toward missiles with their survivability and quick reaction.

(2) The B-52 fleet should be maintained generally for the fully operational life of the aircraft without further modification beyond what is now approved, subject to determinations with respect to the B-52/SRAM system.

(3) The B-58s do not appear to offer any considerable advantage over B-52s when stationed in the CONUS. As a relatively small and expensive system, their future should be based on the decisions on studies currently underway regarding possible reflex deployments.

~~TOP SECRET~~

2

Tab A
Appendix E to Section A
Part VI, JSOP-70

(Revised by 19th Corrigendum - 19 February 1955)

~~TOP SECRET~~

~~TOP SECRET~~

(4) No recommendation or decision on a follow-on manned bomber need be made at this time, but study and development should proceed on the various possible alternative systems.

c. The missile targeting tables* present requirements for US strategic missiles in terms of inventory weapons, with the final implication that the recommended missile force is inadequate to cover the necessary targets. Two possible areas of misconception are associated with this.

(1) First, this method of presentation, translating directly from alert to inventory missiles, overlooks the contribution of the non-alert increment of the force, which is significant. Non-alert missiles can be depended upon to survive, in large part, initial Soviet attacks and penetrate to target areas. Therefore, they can be programmed with assurance against targets.

(2) Second, these tables exemplify the extreme sensitivity of analytic methods to the assumed operational input factors. In this analysis, alert rates for MINUTEMAN I and II were assumed to be 85% and 90% respectively. The current alert rate for our present-day MINUTEMAN force, on the other hand, is about 98%. Changing this factor alone, on the premise that alert rates achievable today should at least be able to be equalled if not surpassed in coming years, would give us about a hundred more MINUTEMAN on alert. This, by itself, when properly factored in to the

* Page A-24, Table

Table, Summary of Missile Targeting.

and Page A-26,

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

computations on which these tables are based, would
eliminate the apparent deficiency for FY 1969. When
combined with the expressed Army view that [REDACTED]
[REDACTED] in US
retaliation, the apparent deficiency for FY 1974 is
also overcome.

d. Although not founded entirely on this or any other
single analysis, the Army's over-all view of US strategic
missiles is that our recommended force level, which
includes 1200 MINUTEMAN, is adequate but not excessive.
Two possible developments bear on this matter.

(1) One is the potential capability of a MIRV
system. Although this could unquestionably improve
the effectiveness of our strategic missiles, it is
too remote at this time to influence force require-
ments. Further, if feasible for us, it could well be
balanced off by a concurrent Soviet MIRV development.

(2) The other is the possible deployment of a
multilateral or multi-national force within NATO.
Although, at this time, too involved with political
uncertainties to change recommendations for missile
forces, such a development is possible. If an
effective NATO missile force should come into
existence, it should be in lieu of and not in addition
to US strategic missile forces for attack of a part
of the nuclear threat targets which imperil Europe
but which could not reach the United States.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

3. Defensive Forces

a. Associated with the nuclear offensive forces are 1
the continental missile and air defense forces, designed 2
to protect the United States against direct attacks. 3
Currently the United States has no protection against 4
Soviet ICEMs or SLBMs, once launched, and only a moderate 5
defense against Soviet aircraft and cruise missiles. 6
Moreover, the current US interceptor force is highly 7
vulnerable to defense suppression attacks by Soviet 8
missiles. The limited capability and high vulnerability 9
of the current interceptor force leads to the conclusion 10
that it should be reduced to the programmed level. As 11
a result the recommendation* of the JSOP-70 analysis to 12
retain current interceptors essentially at present 13
levels is not supported. 14

b. Follow-on Manned Interceptor** 15

(1) In view of the deficiencies of the current 16
interceptor force, there should be developed a follow- 17
on interceptor to provide area bomber defense comple- 18
menting the terminal bomber defenses. The Army 19
considers that an option on the F-12, for the role of 20
follow-on manned interceptor as a part of a balanced 21
damage limiting force, should be retained. However, 22
based on the estimated threat, and on the earliest 23
attainable date of a balanced damage-limiting posture, 24
the decision for production and deployment of either 25
the F-12 or the F-111 can be deferred. It is 26
considered that studies now in progress as well as 27

* Page A-67, line 13 Current Manned Interceptors
** Page A-67, line 18, Advanced Manned Interceptor and Page
A-105, F-12

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

continuing system developments and possible further 1
intelligence will form a better basis for later 2
recommendation on which of the competing systems is 3
preferred. 4

(2) One point should be made clear in considering 5
my support of a follow-on manned interceptor. This 6
support is based on the need for a balanced defensive 7
posture. At this time there is no active defense 8
against the Soviet ballistic missile threat. Until 9
such time as that defense is also programmed, the 10
inclusion of a follow-on interceptor in the bomber 11
defense is not warranted, since such a defense can be 12
overcome with ease through the use of missiles. The 13
JSOP-70 and other analyses have shown that the damage- 14
limiting effectiveness of forces including IMI or any 15
other interceptor, is very restricted when ABM is not 16
included. Consequently, my support of the deployment 17
of any follow-on manned interceptor would be conditional 18
on a favorable decision for deployment of NIKE X. 19
c. The concept of complementary defenses is important 20
in missile defense not only with area bomber defense 21
but also with terminal bomber defenses. To have one 22
defense without the other permits the attacker to defeat 23
the defense by the simple expedient of attacking with 24
the system against which there is no effective counter. 25
It is for this reason that Force C* should be recognized 26
as being simply for analytic purposes. Both Force C 27
and Force B should be compared separately to Force A as 28
indicating the contributions of components of the 29
balanced defensive mix, and not as realistic mixes in 30

* Page A-20, Table 2, Force C.

~~TOP SECRET~~

6

Tab A
Appendix E to
Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

themselves. Force C added missile defenses to currently 1
programmed forces but did not include the deployment of 2
the complementary terminal bomber defenses at the 3
complexes defended by NIKE-X. Since many of the fatali- 4
ties in this analysis resulted from SLCMs targeted 5
against complexes defended by NIKE-X, inclusion in Force C 6
of SAM-D at these complexes under the conditions assumed 7
in this analysis would have resulted in additional major 8
reductions in fatalities and damage. 9

d. In this analysis the F-12 was not employed against 10
the SLCM threat.* The mere fact that an individual F-12 11
could have a good kill probability against an individual 12
SLCM does not mean that the system would be effective 13
against the SLCM threat. In defending the United States 14
from bomber attack, the F-12 together with its associated 15
AWAC must be oriented for attack coming over the polar 16
area. The SLCM attack, on the other hand, would occur 17
from other directions, requiring that the F-12 system 18
be reoriented or the number of F-12s increased. Further, 19
a survivable system to provide sufficient early warning 20
and control would have to be available along the coasts 21
of the United States so that the F-12 could be in position 22
in time to intercept the missile. While the F-12 could be 23
deployed for use against the SLCM threat, the concept 24
of such employment, its cost, and its effectiveness have 25
not been developed for comparison with the use of 26
terminal bomber defenses in this role. 27

* Page A-20, Footnote and Page A-41, line 22, F-12 vs SLCM.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

e. In summary, I wish to stress again my support of the 1
balanced defensive posture. Since the primary threat is 2
the ballistic missile, against which there is no active 3
defense whatever, NIKE-X is the key to attainment of such 4
a posture. This, along with the essential improvements 5
proposed for the other offensive and defensive systems, 6
would ensure the survival of the United States should 7
deterrence fail and, as a result, would strengthen our 8
hand in dealing with aggression at any level. 9

~~TOP SECRET~~

~~TOP SECRET~~

TAB B

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE CHIEF OF NAVAL OPERATIONS

1. General. The CNO is in general agreement with the
level of forces stemming from the analysis of requirements.
Footnotes on the force tables indicate reservations. Further
explanation concerning these reservations, where appropriate,
together with a discussion of associated considerations, are
contained in the following sections.

2. Views on Strategic Retaliatory Forces

a. The Chief of Naval Operations views concerning force
level requirements for strategic offensive forces reflect the
following judgments:

(1) For the foreseeable future a "mix" of missile and
aircraft forces is needed to meet assured destruction
objectives and to complement other damage limiting capa-
bilities. This reflects an appreciation for the flexibility
provided by a manned aircraft force and the complicating
effect that such a force has on enemy defensive planning.

(2) Within the "mix" the priority requirement for both
purposes is the attainment of an adequate missile inventory.
The emphasis accorded missile requirements is based on
analysis of the relative value of missiles versus aircraft
for assured destruction and damage limiting purposes. For
assured destruction purposes, survivability is essential.
In that respect missiles have a clear edge. For damage
limiting purposes the critical consideration is the
potential against [REDACTED] targets. Here also
missiles have an evident superiority.

b. An illustrative analysis was conducted in consonance
with the foregoing judgments. In that analysis the operational
factors in Table A-2, Appendix A were used to evaluate the
following systems in a 1971 time frame:

Tab B
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

MINUTEMAN I
MINUTEMAN II
TITAN II
POLARIS (A-2)
POLARIS (A-3)
B-52

(1) The above forces were weighed against the 1969 target list outlined on pages A-92 and A-93 extrapolated toward the 1974 list to provide an estimated 1971 target list. The result was an increase of 22 hard point targets (SS small, 1X1) over the 1969 quantity. The target list is a composite of USSR and

(2) The analysis considered conditions of and retaliation with forces generated in the former case and in a day-to-day readiness posture in the latter. In each case full account was taken of all systems considered, both alert and non-alert.

(3) On that basis the strategic offensive task would involve the attack of some Utilizing the concept that one "on target" weapon is required for each soft DGZ and two for each hard DGZ, (the latter requirement assumes no marked improvement in missile CEPs) a requirement for 1899 (1974) "on target" missiles is indicated. An "On Target" weapon is one which arrives at DGZ subject to all planning factors. Under the conditions postulated the following "on target" weapons are available in the force described in Table A-1:

Quantity	System	On Target Weapons	Retaliation
100	MM I	74	74
1100	MM II	880	873
54	TITAN	35	35
208	POLARIS A-2	133	112
448	POLARIS A-3	309	256
	TOTAL	1431	1350

~~TOP SECRET~~

~~TOP SECRET~~

From the foregoing, it can be seen that approximately 75%
(72%) of the weapon requirement [REDACTED] and 71% (68%)
in retaliation is satisfied by the above missile inventory.
The balance of the task, then, could be completed by manned
aircraft systems.

(4) Computations based on the factors discussed above
discloses that a B-52 force composed of [REDACTED] aircraft
would provide the following "on target" weapons:

[REDACTED]
Retaliation
Consolidation of the B-52 capability with the missile force
results in the following:

	Retaliation
Missiles	1431 1350
B-52	[REDACTED]
TOTAL "on target"	[REDACTED]

These totals fulfill the target list requirements assumed
under either [REDACTED] or retaliatory conditions,
including an expanded [REDACTED]

(5) The illustrative analysis, briefly discussed above,
did not consider the potential of a SOVIET ABM system, since
uncertainties in that area preclude a meaningful assessment.
The considerable contribution available from general
purpose forces would provide a hedge against ABM developments.

c. Recommended requirements and force levels for
specific weapons systems were predicated on the analysis
discussed herein, proven data, and estimated performance
potentials.

3. Views on Continental Air and Missile Defense Forces.

a. The CNO is in general agreement with the requirement
for a balanced defensive force mix as the best means of
reducing the extremely high fatalities we presently
anticipated from a Soviet attack. The evolution of the
Soviet ICBM and SLBM as the major threat to the United States

~~TOP SECRET~~

~~TOP SECRET~~

has outmoded the structure and composition of our defensive forces which were designed primarily to counter a now declining Soviet bomber threat. The composition of our anti-bomber forces for the JSOP-70 period is an area of uncertainty which requires resolution. The key issues are the determination of the optimum mix of surface-to-air missiles systems and manned interceptors and the requirement for, as well as the selection of, a follow-on manned interceptor.

b. While the analyses conducted within the past year have been useful in identifying the major competitive systems which could significantly improve the capability of our anti-bomber forces, they have not examined the effectiveness of various alternative mixes available for surface-to-air missiles (SAM) and manned interceptors. The JSOP-70 analysis is also considered deficient in this regard. Further analysis is required to more clearly define an optimum mix of area and terminal defensive systems against the estimated Soviet threat.

c. Additional views on defensive forces follow:

(1) F-111 and F-12. The comments relating to the comparison of the F-12 and F-111 on page A-59 fail to indicate the longer endurance of the F-111, the equal missile carrying capability of both aircraft when missiles are carried externally, the ability of the F-111 to operate from a larger number of airfields, and finally, the fact that a greater number of F-111 could be procured for a fixed price. The effectiveness of the F-12 is dependent upon a high sortie rate (which is in turn dependent upon availability of rearming bases) during the course of the ~~air battle and upon the optimal performance of an AWAC~~ system which is currently in the early stages of development. The performance attributed to the F-12 was based upon the assumption that the above conditions existed.

Tab B
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

(a) The choice between the F-12 and F-111 as the
follow-on manned interceptor is not a clear one. While
the F-12 would be the preferable aircraft if the Soviets
develop and deploy a long-range supersonic bomber force,
the F-111 aircraft would provide an adequate area
defense system against the currently estimated Soviet
threat. Of interest is the fact that the comparative
analyses of these two aircraft have not considered the
contribution of terminal SAM systems. As a result,
the over-all effectiveness of anti-bomber defenses
has not been recognized.

(b) The CNO considers that the decision regarding
the deployment of either the F-111 or F-12 can be
deferred at this time. Since development of the F-12
and F-111 is essentially complete, additional informa-
tion on their capabilities and effectiveness will be
available to define more clearly the relative advantages
of both systems. The declining nature of the Soviet
bomber threat removes any degree of urgency associated
with the selection of follow-on manned interceptor. In
addition, the option for deployment of either or both
aircraft can be retained as a hedge against any unfore-
seen Soviet long-range bomber developments.

(c) With information available on the optimum mix
of SAMs and interceptors, and the actual capabilities
of both the F-12 and F-111 aircraft established,
better judgments can be made on the requirements for a
follow-on manned interceptor within the context of a
balanced anti-bomber defense force.

(2) Use of F-12 Against SLCM. Footnote a. on page

~~A-20 makes the assumption that the kill probability of the~~
F-12 against the submarine launched cruise missile (SLCM)
would be similar to that for the SAM-D. While this would
no doubt be true if deployment of the aircraft and
supporting systems were to be optimized along the coasts,

Tab B
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

the bomber threat would require deployments to the north, 1
and the same resources could not be deployed against both 2
threats. The CNO considers that the SLCM threat in the 3
mid-range period, which is a sub-sonic one, does not justify 4
the development or deployment of a follow-on manned 5
interceptor as a counter threat. 6

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

TAB C

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE CHIEF OF STAFF, AIR FORCE

PART I - GENERAL

1. These views cover the specific footnotes which appear at 1
the end of these comments. In general, the Chief of Staff, US 2
Air Force, agrees with the methodology and recommendations of the 3
JSOP-70 analysis of strategic retaliatory and continental air 4
and missile defense forces. He believes the first military 5
objective of strategic offensive and defensive forces is to 6
deter or deal effectively with a direct nuclear assault against 7
the United States. The nature of the current and projected 8
Soviet threat dictates that these strategic offensive and 9
defensive forces must have sufficient and capable forces in-being. 10
The growing effectiveness of the Soviet forces provides for the 11
consideration of a variety of options for nuclear attack against 12
the United States, which in turn requires the United States to 13
develop and deploy strong and flexible strategic deterrent forces 14
which will convince the Soviets that initiation of a nuclear 15
attack by them will result in unacceptable damage to the Soviet 16
Union. The United States must possess forces in strategic 17
offensive and defensive posture, with the ability to sustain 18
a nuclear attack, minimize damage to the US and allies, and 19
launch effective counter attacks against the aggressor. These 20
forces must be adequate to protect and defend the United States 21
with the assurance that we will emerge from such a conflict in 22
a dominant position as a free and independent nation. Further, 23
~~the achievement of this objective requires the United States to~~ 24

~~TOP SECRET~~

1

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

b(1) attain and maintain the capability to destroy, as a matter of priority, the instruments of [REDACTED]

[REDACTED] A credible strategic capability of this nature will act as a deterrent force, serve the purpose of limiting damage to the US and its allies in the event of general war and also will contribute to the achievement of US national and military objectives at all levels of conflict, including cold war.

2. The expressed fundamental objective of Communist leadership is the world-wide imposition of its ideals and institutions. It may be assumed the Soviets would not deliberately sacrifice their national society to this purpose; however, Soviet military policy in recent years has been to build up strategic offensive and defensive capabilities, maintain and improve large general purpose forces and pursue research and development programs in advanced weapons*. The relation of these propositions would indicate that the Communist leadership will continue to pursue its objectives and strive to improve its strategic posture vis-a-vis the United States so Soviet advancements will cause a shift in the balance of power in favor of the Communists, thus permitting wide-spread Communist inroads under the cover of strategic superiority.

3. The counter strategy to this threat requires that the United States continue and improve its technological efforts and capitalize upon those recognized developments which will assure a clear margin of US strategic superiority. Several studies, including the Alternative General Nuclear War Postures study as well as the JSOP-70 analysis, indicate that this clear US margin of superiority is not programmed to

* NIE 11-8-64

~~TOP SECRET~~

2

Tab C
Appendix E to Section A
Part VI, JSOP-70

TOP SECRET

~~TOP SECRET~~

~~TOP SECRET~~

exist in the early 1970s. Instead, the relationship of Soviet
to US strategic forces indicates that without a positive
change in our strategic programmed forces, any Soviet break-
through in this area would cause the United States to be
placed in an extremely unfavorable position. Projected short-
comings in our own strategic forces and their inability to
provide adequate continuing security to the nation in general
war require us to undertake such technological improvements in
our forces as are now feasible and desirable. We must in-
crease efforts to examine, develop and deploy strategic
offensive and defensive weapons systems which are required,
and which will provide adequate strategic superiority and
national security.

4. The Chief of Staff, US Air Force, believes that a
balanced force of effective, attainable strategic offensive
and defensive systems in conjunction with a full fallout
shelter program is necessary to achieve the military objec-
tives for national security in the time frame of this plan.
He considers the following programs essential to the attain-
ment of this balanced force:

a. The maintenance of an effective bomber force to in-
clude the development and deployment of an Advanced Manned
Strategic Aircraft (AMSA) by FY 1973.

b. A surface-to-surface missile force consisting of
TITAN II, POLARIS and 1200 MINUTEMAN missiles by FY 1970.

c. The development and deployment of an effective Anti-
Ballistic Missile (ABM) system.

d. The development and deployment of effective terminal
and area air defenses to include:

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

- (1) The production and deployment of the F-12 manned 1
interceptor by FY 1969 and the retention of Century 2
Series interceptors at existing levels pending its avail- 3
ability. 4
- (2) The development and deployment of a fully capable 5
Airborne Warning and Control System (AWACS). 6

PART II - STRATEGIC OFFENSIVE FORCES

1. General 7
- a. The task these strategic offensive forces must per- 8
form is increasing in magnitude and complexity as the 9
Soviets improve their strategic offensive capabilities by 10
increasing the numbers as well as the survivability of 11
their offensive systems. 12
[REDACTED] 13
[REDACTED] 14
[REDACTED] the recent developments indicating 15
that there is little prospect of NATO acceptance of MLF, 16
and the possible phase out of US MACE missiles which would 17
uncover targets of concern to NATO. In contrast to these 18
increasing requirements for strategic forces, currently 19
approved programs would maintain US capabilities at approx- 20
imately the FY 1965 levels. Therefore, modernization must 21
be emphasized to insure maintenance of the capabilities 22
required of these forces. 23
- b. Actions required to provide more effective and modern 24
strategic offensive systems, which will contribute to the 25
balanced force needed to counter the increasing Soviet 26
nuclear threat, include the development and deployment of 27

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

an advanced manned bomber, the improvement of existing 1
bomber systems pending such deployment, and improvements 2
in the strategic missile force. Without such actions, there 3
will be a narrowing range of strategic options available 4
to the United States. These two systems are the substance 5
of the strategic retaliatory forces which deter general 6
nuclear war. Should deterrence fail, these strategic 7
retaliatory forces must have the capability to contribute 8
significantly to limiting damage to the United States, 9
[REDACTED] 10
as may be necessary. They are characterized by a flexi- 11
bility which affords a range of response from the discrim- 12
ination provided by an individual advanced manned aircraft 13
to the capacity [REDACTED] in times of international 14
tension. A discussion of the action the Chief of Staff, 15
US Air Force, believes should be implemented to provide 16
modern and more effective strategic offensive forces 17
follow. 18

2. Advanced Manned Strategic Aircraft (AMSA) 19

a. JSOP-70 indicates* that manned bombers as well as 20
missiles would be effective in attacking residual Soviet 21
forces. By successfully destroying these nuclear threat 22
forces as well as other types of strategic targets, such 23
[REDACTED] 24
manned bombers contribute significantly to the objective 25
of limiting damage to the United States and its Allies 26
and should be considered as an essential element of the 27
strategic offensive force. 28

* Reference Page A-27, line 8, Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

b. There have been three studies completed in late 1964 1
by the Chairman, JCS Special Studies Group, which included 2
the AMSA in a balanced force concept. Each of these studies 3
concluded that the AMSA was competitive with other systems 4
on a cost-effectiveness basis. In the Alternative General 5
Nuclear War Study, the AMSA in a damage limiting role was 6
more effective than ballistic missiles; and the reason was, 7
"that it offers the capability to look at a large number 8
of targets and attack only those which have not been 9
destroyed, thus permitting achievement of high damage 10
expectancies at relatively lower cost than reattacks on 11
each target of the system, irrespective of its state of 12
damage or occupancy." 13

c. The Effectiveness of Strategic Retaliatory Forces 14
Study, Part I, compared the effectiveness of the programmed 15
missile force alone and with this same force plus 200 AMSA. 16
The primary conclusions of this study were given for damage 17
limiting and assured destruction: (1) "Depending upon the 18
war outbreak situation, a force of 200 AMSA, when added to 19
the programmed strategic missile force, could significantly 20
reduce fatalities and damage levels in the United States. 21
These reductions could be as high as 13 per cent in 22
fatality levels and 11 per cent of the industrial base."; 23
and (2) "The AMSA would be consistently effective in the 24
damage assurance role; increases in damage assurance 25
ranged from eight per cent to ten per cent. 26

(b)(1)
[REDACTED] 27
[REDACTED] The additive AMSA force would increase US 28
force-effectiveness against the entire target spectrum; 29

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

damage expectancies could be expected to increase by 20 per cent against the Soviet offensive force structure and by 65-70 per cent against the balance of the prime military target structure."

d. The Effectiveness of Strategic Retaliatory Forces Study, Part II, was conducted to determine the optimum mix of missiles and AMSA considering cost effectiveness. The optimum mixes derived were: [REDACTED] 280 MINUTEMAN, 656 POLARIS and 142 AMSA; for US retaliation 1200 MINUTEMAN, 656 POLARIS and 117 AMSA.

e. In addition to this study justification for development of the AMSA, the JCS have recommended four times in 1964 and in JSOP-70 that Project Definition Phase for AMSA be approved so that they can make an early decision on production and deployment. Their concern is to retain a manned bomber in the strategic offensive forces for the foreseeable future without relying indefinitely on the continued modification of the aging B-52 force.

f. The concern of the Chief of Staff, Air Force, is to assure the modernization and increased effectiveness of the manned bomber force with a system that is designed to penetrate the estimated defenses in the 1970s, and with this modernization, to phase out the aging B-52s. Toward this end the Chief of Staff, Air Force, includes in JSOP-70 the entry of the AMSA and the initial phase down of the B-52 in FY 1973.

3. The B-52

a. To extend the safe life of the C through H series B-52s (40 squadrons or 600 UE) there is an approved

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

structural modification program (ECP-1128) under way which 1
will allow the B-52 to be effectively employed using a low 2
level delivery tactic. With this modification and the 3
lifting of present flight restrictions, which will allow 4
SAC to perform realistic training missions at low altitudes, 5
the B-52s will start reaching their estimated safe life 6
in substantial numbers in FY 1969. 7

b. An additional structural modification (ECP-1185) is 8
programmed to be applied to the B-52 G and H series only 9
(17 squadrons or 255 UE). It is estimated that ECP-1185 10
will extend the safe life of these aircraft through 1975. 11
This estimate is to be validated by the Air Force Logistics 12
Command and Boeing engineers in a report due in March 1965. 13
This leaves a question concerning the C through F series 14
B-52 (23 squadrons or 345 UE) if they are to remain in the 15
force until FY 1973, the projected phase in date of the 16
AMSA. If funds cannot be provided to apply ECP-1185 or 17
some other less costly structural modification to the B-52 18
C thru F there is an alternative to extending their safe 19
life without modification. This alternative, while not 20
recommended, is to impose certain flight restrictions so 21
that the aircraft are not subject to the stress of low 22
altitude flying during training missions. 23

c. A decision on the best way to extend the life of the 24
B-52 C thru F may be delayed until FY 1966. Based on this 25
fact and the expected better understanding of ECP-1185 as 26
mentioned above, the Chief of Staff, Air Force, includes 27
in JSOP-70 40 squadrons of B-52s or 600 UE through FY 1972. 28

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

4. The MINUTEMAN Force Level

a. The JSOP-70 analysis has demonstrated the requirement for a force of 1910 missiles consisting of 656 POLARIS, 54 TITAN II, and 1200 MINUTEMAN. In the targeting concept of this strategic missile force the POLARIS is generally targeted against [REDACTED] because of its probability of survival while at sea along with its lesser yield and accuracy. [REDACTED]

[REDACTED] and out the targeting of the missile force the MINUTEMAN is targeted against [REDACTED]

b. In a recent Air Force study* the number of [REDACTED] targets used was [REDACTED] representing the JIEP median estimate for 1970. This Air Force study addressed the MINUTEMAN requirements for that time period giving the Air Force the capability to [REDACTED]

[REDACTED] An analysis of damage expectancy indicated this combination of yield and CE was better suited for use against [REDACTED] Of the [REDACTED] targets, [REDACTED] were suitable for [REDACTED] requiring a greater yield for acceptable damage expectancy. [REDACTED]

* An Air Staff analysis of possible MINUTEMAN capabilities and effects of MIRV on the programmed missile force.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(b)(1) [REDACTED] 1 DOE
2 b(3)
3 This combination of yield and CE is effective for
4 the destruction of [REDACTED]

d. The Air Force study considered the effectiveness of 5
the FY 1970 programmed 1000 MINUTEMAN force, consisting of 6
250 MINUTEMAN I and 750 MINUTEMAN II, when applied to the 7
time sensitive target coverage task for that year. 8
[REDACTED] 9
[REDACTED] 10
[REDACTED] 11

The applica- 12
tion of this force against the [REDACTED] using optimum 13
reprogramming methods, yielded a total number [REDACTED] 14
probably destroyed. Also, due to limitation in numbers of 15
missiles available, it was not possible to cover each aim 16
point with one reliable missile. Thus, even with MIRV 17
capability and using optimistic planning factors, it was 18
not possible with a force level of 1000 MINUTEMAN, to 19
achieve an adequate level of damage expectancy and target 20
coverage in the task assigned to the MINUTEMAN. However, 21
the study showed that a similar application of a 1200 22
MINUTEMAN force, [REDACTED] 23
provided complete target coverage with a damage expectancy 24
of approximately 90%. 25

e. Further substantiation of the requirement for a 26
MINUTEMAN force of 1200 comes from the three studies cited 27
in paragraph 2 b, c and d above. The General Nuclear War 28
Postures Study showed a requirement for 1200 MINUTEMAN; the 29

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

Effectiveness of Strategic Retaliatory Forces Study, Part I, 1
used 1326 while Part II indicated a requirement from 1200 2
to 1280 in its "optimum mixed force." These studies all 3
addressed the problem of determining the balanced force 4
required in the 1970s to provide the United States with the 5
capability to meet the strategic objectives of damage 6
limiting and assured destruction. 7

f. The Chief of Staff, US Air Force, taking into con- 8
sideration the 18 month lead time for MINUTEMAN facility 9
construction, supports the attainment of a minimum level of 10
1200 MINUTEMAN by end FY 1970. 11

5. MINUTEMAN III* 12

a. A MINUTEMAN modernization and replacement program 13
should be considered to develop MINUTEMAN III for initial 14
operational deployment in FY 1973. The development of 15
MINUTEMAN III is similar to the development of POLARIS B-3 16
in that the time of entry into the force of each of these 17
improved missiles is predicated on the estimated termina- 18
tion of the effective shelf-life of the respective mis- 19
siles being replaced. Also, it is planned for MINUTEMAN III 20
to use the MINUTEMAN II facilities similar to the POLARIS 21
A-2 and A-3 replacement with POLARIS B-3. Current Air 22
Force studies indicate that a significant increase in pay- 23
load capability is possible with this improved MINUTEMAN. 24
In addition to the increased payload capability, the 25
MINUTEMAN III is estimated to have improved re-entry 26
vehicle capabilities resulting from improvements to the 27
technological advances in the MINUTEMAN II and POLARIS 28
B-3 programs. 29

* Reference Page A-62, line 18, and Page A-66, line 5,
Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

b. The Chief of Staff, US Air Force, believes that the replacement of MINUTEMAN II with MINUTEMAN III will increase significantly the capability of the strategic offensive forces in the later JSOP time period. Consequently, he has indicated in JSOP-70 the possible phase out of TITAN and phase down of the MINUTEMAN II force consistent with the anticipated phase in of MINUTEMAN III.

6. SR-71

a. The need for modernization of the strategic reconnaissance force is evidenced by the approved program for the production and deployment of 25 SR-71s. This aircraft with its advanced avionics and long range may be employed to fulfill the cold war requirement for global reconnaissance; the "periods of tension" requirement to concentrate on specific areas of interest; the limited war requirements for area of conflict damage assessment as well as sanctuary reconnaissance; and the general war requirements of pre-attack, trans-attack and post attack reconnaissance; and damage assessment.

b. The approved program provides six test flight aircraft and 25 operational aircraft. This is not a standard aircraft program in that no allowance for attrition is included in the approved program so as to maintain a force level of 25. Experience with the U-2 indicated that normal attrition rates cannot be applied to aircraft operating at the speeds and altitudes planned for the SR-71. The rates are generally higher than those used for other aircraft. In addition to attrition, the expected operationally ready rate needs must be considered when establishing a total force requirement. For example, to receive a C-1 combat readiness rating, F-106 and B-58 units must have 71% of UE aircraft operationally ready.

~~TOP SECRET~~

12

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

These aircraft approach the SR-71 in speed and avionics complexity. Considering attrition and with a 71% operationally ready rate, 25 SR-71s will not provide a day-to-day available force adequate to satisfy long term mission requirements.

c. The mission, force required and concept of employment are currently being developed in detail based on the results of tests now in progress.

d. Taking into consideration the many possible applications of this system, the operational factors and the mission requirements to be developed, the Chief of Staff, Air Force, supports in JSOP-70 a level of 34 SR-71s in FY 1968 and will provide in the near future a proposed ultimate force level objective for JCS consideration.

7. Other Considerations

a. The Soviets have ample reason to place high priority on the development of a multiple warhead/decoy payload for their ICBM's to offset any US numerical superiority as well as to counter the possibility of a US antimissile system. The attractiveness of the multiple warhead and MIRV capability to the Soviets would support the judgment that, rather than awaiting an impending deployment of a US ABM,* the Soviets probably already have assigned a high degree of urgency to improvements in their ICBM force. Soviet development and deployment of a MIRV capability in the high payload Soviet ICBMs would provide for the attack of a greater number of targets including more of our strategic offensive and other military forces. If the Soviets develop a MIRV capability, the US must consider improved means of survivability for strategic offensive systems such as providing higher levels of

* Reference Page A-49, line 26, and Page A-64, line 16, Section A, Part VI

~~TOP SECRET~~

12a

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

missile hardness; producing smaller missiles in larger numbers; 1
designing a land mobile ICBM system, or combinations of these 2
and other measures. Considerations for increasing the sur- 3
vivability of the remaining strategic offensive forces could 4
include such actions as extending strategic bomber dispersion 5
and alert readiness; increasing the on-station, alert deploy- 6
ment of inventory POLARIS submarines; and increasing the sur- 7
vivability measures applicable to submarine base facilities, 8
the ships in port, and national/military command, control and 9
communications facilities. 10

(b)(1)
(b)(1)
b. The JSOP-70 analysis also considers that non-alert 11
vehicles which survive nuclear attack could be programmed 12
against [REDACTED] targets.* It is acknowledged that 13
if such residual missiles and aircraft can be placed in oper- 14
ational status within a reasonable period of time they can con- 15
tribute by striking targets [REDACTED] However, 16
the general war requirements for total delivery vehicles must 17
be computed with due consideration to the basic US general war 18
objective "to defeat the Soviet Bloc alone [REDACTED] 19
[REDACTED] and its supports in such a manner as to 20
force termination of hostilities on terms advantageous to the 21
United States and to assure that the United States has suffi- 22
cient residual power to retain its position as a dominant 23
world power." (JSOP-70 Part III). Throughout the JSOP analysis 24
no ready uncommitted weapons have been withheld as a strategic 25
reserve to underwrite this objective. If all readily available 26
residual vehicles are committed to the attack of [REDACTED] 27
[REDACTED] targets, as reflected in portions of the JSOP 28
analysis, there would be no reserve of delivery vehicles with 29
which to satisfy this general war objective. Consequently, the 30
Chief of Staff, US Air Force considers it prudent, in computing 31
strategic requirements, to consider those non-alert vehicles 32
which survive an initial attack as a portion of the uncommitted 33
reserve. 34

* Reference Page A-97, Table D-2; Page A-99, Table D-4; Page A-100,
Table D-5, Section A, Part VI

~~TOP SECRET~~

13

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

PART III - STRATEGIC DEFENSIVE FORCES

1. General. The strategic defense task has expanded from sole concern with a Soviet bomber attack to defense against an attack by missiles followed by bomber attacks. Ballistic missiles represent an increasing threat and, while the quantitative Soviet bomber threat is decreasing, the reduction is taking place at a lesser rate than previously forecast. This fact, together with qualitative improvements in the Soviet bomber force, indicates continued reliance on the manned vehicle as a strategic offensive system. The relationship of the threat spectrum to the interaction of strategic offensive and defensive force, as contained in the JSOP-70 analysis, should have considered the following Air Force view of Soviet ICBM launchers and Soviet Long Range Aviation as contained in the National Intelligence Estimates* and the Joint Intelligence Estimates for Planning.**

Soviet ICBM Launchers

	<u>1969</u>	<u>1974</u>
Soft	185-220	180-275
Hard	<u>340-430</u>	<u>720-925</u>
Totals	525-700	900-1200

Tyuratam launchers are included. The estimate assumes a small reliable ICBM deployed in hard sites, deployment starting in 1967.

Bomber Strength in Soviet Long Range Aviation

	<u>1969</u>	<u>1974</u>
Heavy Bombers		
BISON	85	15
BEAR	95	45
Follow-On	<u>20- 65</u>	<u>90-150</u>
Totals	200-245	150-210
Medium Bombers		
BADGER	425-525	0- 50
BLINDER	250-325	200-320
Follow-On	<u>----</u>	<u>250</u>
Totals	675-850	450-620
Total Bombers in LRA	875-1095	600-830

* MIE 11-8-64

** Reference Page A-89, Table C-1, Section A, Part VI

~~TOP SECRET~~

14

Tab C
Appendix E to Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

The Chief of Staff, US Air Force considers that a mix of modernized area and terminal defensive weapon systems is required to provide an effective air and missile defense capability. Area and terminal weapons supplement and complement each other; they force the enemy to provide means of countering each type of defensive system, thereby complicating his offensive strategy and reducing its effectiveness. Accordingly, an effective US strategic posture requires defensive forces in-being which are sufficient in quantity and quality to counter the missile and bomber threat, thereby complementing our strategic offensive forces in the damage limiting role and adding to the deterrent posture of the US.

2. Ballistic Missile Defense Forces.* The lack of an effective US ballistic missile defense constitutes a major gap in our existing defensive forces. While the NIKE-X system offers promise of considerable capability, it should be acknowledged that, in addition to the uncertainties described in the JSOP-70 analysis, there are others which have a bearing on the development of an effective ABM capability.

b2
The Chief of Staff, US Air Force believes that the scope of production and development

* Reference, Page A-52, line 7, Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

for NIKE-X should be contingent upon progress made in the
development program and the review of an optimum deployment
concept by the Joint Chiefs of Staff. In addition, accelerated
and expanded research and development effort should be
initiated towards the attainment of an area anti-ballistic
missile defense capability (boost or mid-course). Such an
effort is considered with a view towards complementing the
terminal ABM defense that NIKE-X would provide.

3. Air Defense Forces

a. Advanced Manned Interceptor.* Selection of the best
interceptor aircraft to bolster US defense against the
manned bomber and submarine launched cruise missile (SLCM)
threat has been the subject of extensive consideration,
including 7 major studies, within the past 3 years.
Several weapon systems were considered which included the
Navy version of the F-111, the tactical F-111A, (both
modified to an optimum interceptor configuration), the
F-4, and A-5 and the F-12. Several threat levels and
variable budget levels were examined for sizing interceptor
forces as well as selecting optimum defense force postures.
These studies were conducted to explore the full range of
requirements and capabilities. The F-12 consistently
emerged as the superior weapon system on the basis of its
proven ability to satisfy the requirement for an advanced
manned interceptor to operate at extended ranges against
enemy targets. This advanced manned interceptor will have
the capability of detecting, identifying, intercepting and
destroying targets from the earth's surface to altitudes
of 100,000 ft. or more. This system will provide for

* Reference Page A-67, line 14, Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

destruction over unpopulated areas thus minimizing col- 1
lateral damage. Its improved radar, longer range missiles, 2
interceptor speed of [REDACTED] or better, and high kill 3
probability are requirements to counter the effectiveness 4
of ASMs, SLCMs, and bombers. The aircraft will be capable 5
of autonomous or semi-autonomous operation in the degraded 6
command and control environment likely to be encountered 7
in a general nuclear exchange. Within the JSOP-70 analysis 8
the F-12 was not employed against sea launched cruise mis- 9
siles (SLCMs).* However, the normal concept of deployment 10
for the F-12/AWACS area defense force is well suited for 11
defense against SLCMs. Under normal alert conditions six 12
AWACS stations would be located approximately 500 NM off 13
shore adjacent to the major population centers. These 14
stations would provide coverage from the present ground 15
radar coverage area to a distance about 750 NM off shore. 16
The AWACS would have a 95% probability of detection for 17
SLCMs launched from or entering its area of coverage. 18
This capability, together with the planned deployment 19
locations for the F-12, would enable destruction of the 20
SLCMs at least 100 NM from their targets, thereby greatly 21
reducing the hazards associated with the detonation of 22
nuclear weapons over population areas. Considering the 23
capabilities of the F-12 system, reattack could be accom- 24
plished if necessary. Accordingly, the percentage of 25
fatalities indicated in the analysis would have been pro- 26
portionately reduced if the F-12 had been applied against 27
the SLCM threat. The Joint Chiefs of Staff have recog- 28
nized** the necessity to modernize US defense forces with 29

* Reference Page A 20, Table 2, Section A, Part VI and
Page A-41, line 22, Section A, Part VI

** JCS 1800/907-1

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

a manned interceptor which takes full advantage of the state-of-the-art. They also stated that weapon systems which promise to be effective should not be deferred if a balanced damage limiting force is to be achieved by 1974 without prohibitively high annual budgets in the later JSOP time period. The F-12 development program conclusively has established the capability of the system, and it has taken full advantage of the state-of-the-art. The Chief of Staff, US Air Force recommends that production funds be provided within the FY 1967 budget to permit an orderly and economical deployment of the F-12 force starting in FY 1969. With such deployment a more cost-effective interceptor force will be realized. Until the F-12 force is deployed, current manned interceptor forces should be maintained essentially at their present levels.

b. Surface-to-Air Missiles.* Attainment of the most effective air defense capability requires the deployment of both area and terminal defenses. These two types of systems are complementary and should not be viewed as replacements for each other. Although the F-12 interceptor force virtually eliminated the manned bomber and ASM threat in the bomber defense excursion within this analysis (See page A-54, Case III), those few bombers and/or ASMs that might get through the area defense could cause much damage if they were to attack our highest priority urban/industrial areas. Therefore terminal defenses should be provided for those high priority areas in order to complement the area defenses. The JSOP-70 analysis considered the following possibilities in regard to terminal air defense:

* Reference Page A-55, line 20, Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(1) Increasing the capability of the NIKE HERCULES 1
system to permit engagement of low altitude vehicles. 2
For purposes of evaluation, this analysis attributed 3
the NIKE HERCULES system with a 50 per cent probability 4
of detection and acquisition against low level (approx- 5
imately 1000 feet) aerodynamic vehicles. This capability 6
does not exist today. CINCNORAD states that all NIKE 7
HERCULES defended areas are vulnerable to low altitude 8
attack (1000 feet and below). Improvements to provide 9
NIKE HERCULES with a capability against low altitude 10
targets would require extensive resiting of detection 11
and acquisition radars as well as other system modifica- 12
tions. There are no approved programs to provide this 13
capability. 14

(2) Improving the HAWK system and its deployment to 15
175 cities. 16

(3) Developing the advanced surface-to-air system 17
(SAM D). 18

If successfully developed, the SAM D system could be de- 19
ployed in the early 1970s. Actions to improve and/or re- 20
site the NIKE HERCULES and HAWK systems could not be com- 21
pleted until the late 1960s. Therefore, to avoid unneces- 22
sary duplication in capabilities and expenditure of funds, 23
the Chief of Staff, US Air Force, recommends that a review 24
of development progress and capabilities of these three 25
terminal defense systems be accomplished during programming 26
actions for FY 1967 to insure timely recommendations by 27
the Joint Chiefs of Staff.* 28

* Reference Page A-67, line 5, and Page A-68, line 5,
Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

c. Surveillance, Warning and Control. Reorganization of 1
the air defense surveillance and control system to achieve 2
cost reductions and increased survivability must be based 3
on the interrelationship among weapon system force structure 4
and deployment, operational capabilities vis-a-vis the threat 5
and the dynamics of the defense problem. Recently, approval 6
has been received to change the system into the SAGE/BUIC 7
III configuration. This will greatly increase the surviva- 8
bility and flexibility of the air defense ground environ- 9
ment. However, the necessary surveillance, warning and 10
control capability can be realized only through the develop- 11
ment and deployment of a fully capable Airborne, Warning 12
and Control (AWAC) system to augment and replace, when 13
necessary, the ground environment. The ultimate phase-out 14
of the existing AEW/ALRI aircraft is contingent upon phase- 15
in of the AWAC system which will greatly increase capa- 16
bility and survivability of the air defense environment and 17
enhance the effectiveness of interceptor weapons. No phase 18
down in off-shore radar extension aircraft should be made 19
until the AWAC system is operational. 20

4. Anti-Submarine Warfare Forces.* The damage limiting 21
effectiveness of Naval ASW forces in the JSOP-70 analysis is 22
particularly sensitive to the study assumptions and to the 23
targeting concept for Soviet submarine launched missiles used 24
in the analysis. Although submarine launched missiles were 25
programmed in the analysis against cities and strategic bomber 26
bases, there would be equal justification for the enemy to 27
direct the submarine portion of his missile forces against US 28
naval bases, ports, associated littoral targets, and the SOSUS 29

* Reference Page A-43, line 20; Page A-44, line 18, and
Page A-45, line 7, Section A, Part VI

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

system itself. The JSOP-70 analysis acknowledges that completion of Phase II SOSUS is essential to obtaining the Soviet submarine attrition factors employed therein. The entire SOSUS system, however, received at least 85 per cent quick destruction in all JSOP-70 scenarios except [REDACTED]. Therefore, it follows that the effectiveness of existing and programmed ASW forces is closely related to assured survival of the SOSUS systems. Consequently, the Chief of Staff, US Air Force, while supporting improved effectiveness of ASW forces, reserves judgment on increases in the size of these forces or increases in the SOSUS system pending a program to assure the effectiveness and survivability of SOSUS.

PART IV - SUMMARY

In summary, the Chief of Staff, US Air Force believes a balanced mix of forces containing the strategic offensive and defensive programs he has recommended constitutes the necessary force to maintain the required strategic posture and that its adoption will indicate clearly our resolve in supporting US national objectives. The recommended strategic offensive force mix represents a careful balance of hardened and mobile missiles backed by long range, penetrating aircraft with the reliability, versatility, and economy achieved only through the presence of man-over-target. The complementary recommended objective force for Continental Air and Missile Defense is an orderly phasing toward a smaller but more efficient force to provide a thoroughly effective missile, bomber and space defense when deployed in conjunction with a full fallout

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

shelter program. The entire strategic offensive and defensive 1
posture recommended by the Chief of Staff, US Air Force, pro- 2
vides for capable forces in being, designed to fulfill the 3
national objectives of maintaining a credible strategic 4
deterrent and, should deterrence fail, provide assurance that 5
the US will emerge from the conflict in a dominant position 6
as a free and independent nation. 7

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

CSAF FOOTNOTES

SECTION A, PART VI, JSOP-70

STRATEGIC RETALIATORY FORCES AND CONTINENTAL
AIR AND MISSILE DEFENSE FORCES

Page A-20. 3/ This analysis attributed NIKE HERCULES with a low level capability (approximately 1000 ft) which it does not and is not programmed to have. The analysis also assumed the F-12 to have no capability against SLCMs when, in fact, the normal concept of deployment for the F-12/AWACS area defenses would provide an excellent capability against SLCMs. The compounding of these two study assumptions results in study outcomes which do not accurately reflect the capability of the 1974 USAF proposed area defenses.

Page A-27. 1/ Manned strategic aircraft as well as missiles would be effective in attacking residual Soviet forces. Manned aircraft will contribute significantly to limiting damage to the United States and its Allies by destroying

Consequently, they must be considered as an essential element of the strategic offensive force.

Page A-41. 1/ The JSOP-70 analysis did not examine the F-12 against sea launched cruise missiles (SLCMs). This omission provided terminal defense weapons with an abnormally high number of target opportunities. The normal concept of deployment for the F-12/AWACS area defenses would enable destruction of SLCMs at least 100 NM from their targets thus greatly reducing the hazards involved with the detonation of nuclear weapons over populated areas. The over-all kill probability for the F-12 system against SLCMs would be approximately 85% with a single missile. Re-attack could be accomplished if necessary.

Page A-43. 1/ Effective ASW is supported; however the subject of total ASW forces is of principal concern in programs other than Continental Air and Missile Defense and should be considered in recommendations rendered in relation to the appropriate program rather than in the Continental Air and Missile Defense Analysis.

Page A-44. 1/ It is noted that the damage limiting effectiveness of ASW forces in the JSOP-70 analysis and the conclusions derived therefrom are highly sensitive to the ASW assumptions and the targeting concept for Soviet submarine launched missiles used in the analysis. If SLMs were programmed against US cities in combination with ICBMs and bombers, the Soviet submarine force would account for only about 3 percent of US fatalities with a full fallout shelter program.

Page A-45. 1/ Judgment is reserved on increases in the size of ASW forces or increases in the SOSUS system pending a review of a program to assure the effectiveness and survivability of the system.

Page A-49. 1/ There is no sound basis for the judgment contained in the analysis report that there is no urgency for the USSR to develop and test multiple warhead/decoy payloads for ICBMs until a US ABM is in the offing. The Soviets have ample reason at present to place high priority on development of a multiple warhead capability to offset any US numerical superiority as well as counter the possibility of a US anti-missile system. The attractiveness of these possibilities to the Soviets would support a judgment that they probably already have assigned a high degree of urgency to improvements in their ICBM forces.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

Page A-52. 1/ In addition to the uncertainties covered in the analysis, there are others which might degrade effectiveness of terminal missile defenses

Accelerated and expanded R&D effort should be initiated toward the attainment of an area (boost or mid-course phase) missiles defense capability to augment and complement terminal missile defenses.

Page A-55. 1/ The most effective air defense capability requires both area and terminal defense systems. They are complementary and should not be viewed as replacements for each other. Within this analysis consideration was given to improving NIKE HERCULES, a HAWK Improvement program and deployment to 175 cities, and SAM D development and deployment to 47 complexes. Actions to improve or resite the HERCULES and HAWK units could not be completed until the late 1960s. If successfully developed, the SAM D system could be deployed in the early 1970s. To avoid unnecessary duplication in capabilities and expenditure of funds, the JCS should review the development progress and capabilities of these three terminal defense systems and make appropriate decisions during programming actions for FY 1967.

Page A-62 and A-65. 1/ As MINUTEMAN II shelf life expires modernization is required. MINUTEMAN III is proposed to use MINUTEMAN II facilities and have improved capabilities to fill the requirement for modernization.

Page A-64. 1/ Some of the actions which may be considered if the Soviets develop a MIRV capability are: higher levels of missile hardness; production of smaller missiles in larger numbers; development of land mobile missiles; greater bomber dispersion and alert readiness; increased on-station alert deployment of POLARIS submarines; and increasing survivability of ship, submarine, and command and control facilities.

Page A-67. 1/ Same as footnote 1/, page A-55.

Page A-67, line 14. 1/ The F-12 development program conclusively has established the capability of the system and has taken full advantage of the state-of-the-art. The Chief of Staff, US Air Force, recommends production funds be provided in FY 1967 to permit an orderly deployment of F-12 aircraft beginning in FY 1969.

Page A-68. 1/ Same as footnote 1/, page A-55.

Page A-89. 1/ It is believed the JSOP-70 analysis should have considered the Air Force view as contained in National Intelligence Estimates and the JIEP concerning Soviet ICBM launchers and Soviet Long Range Aviation.

Pages A-97, A-99 and A-100. 2/ Throughout the JSOP analysis no ready uncommitted weapons have been held in reserve to underwrite the US military objective of emerging from general war as a dominant world power. The Chief of Staff, US Air Force, believes that non-alert vehicles which survive an initial attack should be considered as a portion of this uncommitted reserve.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

TAB D

APPENDIX E

SECTION A, PART VI, JSOP-70

VIEWS OF THE COMMANDANT OF THE MARINE CORPS

I generally concur in the approach used in the preparation of Section A, Part VI, JSOP-70, and support the force levels depicted in Tables 4 and 5 of Appendix E as modified by the appropriate footnote. To provide a general overview of my position insofar as Strategic Offensive and Defensive forces are concerned, I have provided the below listed general and specific comments and identified the items to which they pertain:

a. Page A-65, paragraph 8, OFFENSIVE SYSTEMS,
Footnote 1/:

I consider that the level of strategic offensive forces should provide the capability to destroy [REDACTED] and, in combination with an improved civil defense posture, improved intelligence, improved ASW, and strategic defensive forces, to limit damage to the United States by attack on military targets so long as it is remunerative in terms of lives saved, based on cost effectiveness. I consider that the force levels depicted in Table 4, Appendix E will provide this capability against the currently estimated threat. In addition, however, it is necessary that a vigorous research and development program be pursued, and more sophisticated systems phased in as older systems phase out, to retain the above capability against a more sophisticated enemy threat should one develop.

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

b. Page A-66, paragraph 8b, DEFENSIVE SYSTEMS

Footnote 3/:

I consider that the level of strategic defensive forces, in combination with strategic offensive forces, an improved civil defense posture, improved intelligence, and improved ASW should provide for limiting damage to the United States to ensure survival as a Nation with sufficient strength to bring a nuclear war to a conclusion on terms favorable to the United States and our Allies. The development of new interceptors, surface-to-air missiles, anti-ballistic missiles and improved warning and control systems are fully supported; however, recommendation regarding force levels for new systems are dependent on resolution of the optimum mix of manned interceptors and surface-to-air missile systems, and the estimated enemy bomber threat existing at the time. It is necessary that a vigorous research and development program be pursued, and more sophisticated systems phased in as older systems phase out, to retain the above capability against a more sophisticated enemy threat should one develop. I consider that the force levels depicted in Table 5, Appendix E will provide the capability as outlined above. Specific comments on certain forces are provided below:

(1) Development to retain the option to deploy the F-12 is supported; however, I consider that deployment of the F-111 or an improved F-4 series aircraft could provide an adequate defense against the currently estimated bomber threat at less cost. Should intelligence provide indications that the Soviets are developing a supersonic bomber, then a recommendation to deploy the F-12 will be reconsidered.

~~TOP SECRET~~

2

Tab D
Appendix E to
Section A
Part VI, JSOP-70

~~TOP SECRET~~

~~TOP SECRET~~

~~TOP SECRET~~

(2) Force levels for Surveillance, Warning and Control 1
Systems are supported, but significant reduction may be 2
possible with the successful development and deployment 3
of Over-the-Horizon (OTH) radars. 4
(3) Development to permit an option to deploy the 5
AWAC is supported; however, recommendation for deploy- 6
ment is contingent on review of the estimated bomber 7
threat, deployment decision regarding the F-12 inter- 8
ceptor, and review of the status and/or results achieved 9
with the OTH radars. 10

~~TOP SECRET~~

~~TOP SECRET~~